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LOUISIANA

STATEWIDE WILDLIFE INVESTIGATIONS

ANNUAL PROGRESS REPORT, W-29-R-11
A Pittman-Robertson Project

1963-64

LOUISIANA WILD LIFE AND FISHERIES COMMISSION
WILD LIFE AND FISHERIES BUILDING
400 ROYAL STREET
NEW ORLEANS LOUISIANA 70130

STATE: Louisiana

PROJECT: W-29R-11

PERIOD: July 1,1963-June 30, 1964

ANNUAL PROGRESS REPORT

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JOB COMPLETION REPORT
RESEARCH PROJECT SEGMENT
WORK PLAN I
DEER INVESTIGATIONS

State of: Louisiana

Project No. W-29R-11 Name: Statewide Wildlife Investigations

Job No. 2 Title: General Condition of Deer Herds

Period Covered: July 1, 1963 through June 30, 1964

Abstract: Deer checking stations were operated on twelve (12) game management areas during the 1963 managed hunts. All physical data obtained from the deer checked at these stations have been tabulated and analyzed. These data have been compared to the data obtained during previous hunts on the respective areas. Data collected includes age, sex, weight, antler formation, fawn-adult ratios and hunter success ratios. A total of 36,239 hunters killed 3,698 deer on Louisiana Game Management areas during the 1963 hunting season. A deer aging school was held prior to the 1963 managed hunts for all technical personnel.

Recommendations: The collection of physical data from our deer herds is an absolute necessity if we are to carry out an efficient management program. This phase of our deer research program should be continued on an annual basis and an effort should be made to collect accurate physical data at every opportunity. A deer aging school for technical personnel should be held each year prior to the managed hunts to insure that accurate ages are obtained from our checking stations.

Objectives: It is the objective of this job to analyze the physical data from deer killed on the game management areas and correlate the physical condition of deer to age classes, population densities and fawn-adult ratios.

Techniques Used: Deer checking stations were operated on all game management areas having deer seasons except Russell Sage G.M.A. and Bodcau G.M.A. An effort was made to record the age, weight, sex, antler development and type of gun used for as many deer as possible. Due to the simultaneous opening of all game management areas having deer seasons except Bodcau, there were not enough technical personnel to operate all of the checking stations. Biologists were assigned to the key checking stations where the majority of the deer kill was anticipated on each area. Non-technical personnel did not record any data used in this report other than total number and sex of the deer coming through their stations.

All weight data is broken down into three categories: live weight, empty weight, and field dressed weight. Live weight is defined as the weight of the complete intact deer. Empty weight is considered to be the weight of the complete animal with all viscera, heart, liver and lungs removed. A deer with only the stomach and intestines removed was considered to be field dressed. All weight data is broken down by sex and age. The mean weight for each weight category in each age class is calculated. These mean weights were then converted to live weights by the application of generally accepted conversion factors. Mean field dressed weights were converted to live weights by multiplying by the conversion factor 1.25. Mean empty weights were multiplied by the factor 1.33 to obtain computed live weights. Once all three weight categories are placed in common terms we can calculate the average computed live weight for each age class. By presenting weight data in this manner we are able to make easy comparisons between the various management units and data categories. This method of treatment also strengthens the size of the sample. All Louisiana game management areas, with the exception of Bodcau, Ft. Polk, Lutcher-Moore, Russell Sage, Thistlethwaite and Zemurray Park, had a limited five (5) day "Any Deer" season beginning on November 29, 1964. Each of these areas, with the exception of those listed, was assigned a limit number. When this number was reached, the "Any Deer" hunting was stopped and "Bucks Only" hunting was allowed for the remainder of the five day season. In most cases the limit was reached on the first day. This type of season allows us to remove the desired number of deer from our management areas. By using a flexible "Any Deer" season such as that described, you are almost assured of obtaining the desired kill. Bodcau G.M.A. and Russell Sage G.M.A. had seasons which were concurrent with seasons on the outside of the area and allowed "Bucks Only" shooting. Zemurray Park allowed only one hundred and ten (110) hunters per day for a three day "Any Deer" season. Hunters were selected by random drawing of post card applications. This type of season was necessary on Zemurray Park due to its extremely small size. Lutcher Moore and Thistlethwaite had a closed deer season. Ft. Polk had a three day "Any Deer" season following a sixteen (16) day "Bucks Only" still hunt.

Findings: The following table lists the results of the managed hunts on the various game management areas. Also given in this table are the numbers of the data tables appended to this report which contains an analysis of the kill data collected that pertains to the respective areas.

TABLE OF HUNTER SUCCESS FOR SOME LOUISIANA GAME MANAGEMENT AREAS

FOR THE 1963 HUNTING SEASON

G. M. A. AREA	No. of Hunters	No. of Deer Killed	Hunter Success	Table of Numbers Pertaining to Respective Areas
Caldwell	1,268	242	1/5	Table I
Catahoula	2,688	226	1/12	Tables I, II, & IX
Chicago Mill	11,888	1,360	1/9	Tables I, III & IX
East Carroll	1,682	144	1/12	Table I
Evangeline	1,314	99	1/12	Tables I, IV & IX
Jackson-Bienville	4,883	325	1/15	Tables I, V, & IX
Red Dirt	2,650	250	1/11	Tables I, VI & IX
Sabine	251	21	1/12	Table I
Union	511	49	1/10	Table I
West Bay	8,072	900	1/9	Table I, VII & IX
Fort Polk *	702	45		Table I
Zemurray Park*	330	37		Tables I, VIII & IX
Total	36,239	3,698		

*Fort Polk G.M.A. and Zemurray Park hunter success figures are not given due to the manner in which these hunts were conducted. Available data would not reflect an accurate measure of hunter success.

Submitted by:

Dan Dennett, Jr.,
Deer Study Leader

TABLE I

TABLE OF COMPUTED LIVE WEIGHTS BY AGE CLASS, OF DEER KILLED ON SOME LOUISIANA GAME MANAGEMENT AREAS DURING THE 1963 CONTROLLED HUNTS

Area (G. M. A.)	Sex	6 mo.	1½	2½	3½	4½	5½
Caldwell	Male	(40) 62.5	(44) 111.0	(3) 123.7	(6) 150.7	(3) 188.3	(1) 206.2
	Female	(27) 58.2	(24) 95.0	(12) 99.3	(22) 108.0	(7) 113.8	(8) 99.3
Catahoula	Male	(38) 48.1	(34) 81.6	(17) 106.6	(16) 117.8	(7) 125.2	(1) 148.0
	Female	(27) 45.7	(9) 70.6	(4) 75.0	(29) 85.3	(16) 85.5	(24) 90.6
Chicago Mill (Madison Part)	Male	(24) 63.6	(43) 121.7	(34) 155.0	(19) 178.2	(2) 246.1	- None
	Female	(21) 60.3	(20) 96.8	(22) 119.4	(28) 124.8	(8) 124.2	(11) 122.4
East Carroll	Male	(13) 68.4	(18) 140.2	(12) 178.1	(14) 203.8	- None	(1) 251.3
	Female	(21) 58.2	(21) 115.1	(15) 125.4	(10) 127.8	(5) 131.9	(4) 125.0
Evangeline	Male	(17) 55.4	(18) 95.6	(5) 113.8	(5) 125.0	- None	- None
	Female	(17) 51.9	(9) 82.7	(11) 93.8	(7) 97.8	(5) 97.7	(5) 98.2
Fort Polk	Male	(7) 54.4	(6) 94.3	(3) 119.5	(1) 135.0	- None	(1) 159.6
	Female	(8) 46.5	(4) 81.3	(3) 80.9	(6) 82.4	(3) 76.7	(2) 86.5

TABLE I
(continued)

TABLE OF COMPUTED LIVE WEIGHTS BY AGE CLASS, OF DEER KILLED ON SOME LOUISIANA GAME MANAGEMENT AREAS DURING THE 1963 CONTROLLED HUNTS

Area	Sex	6 mo.	1½	2½	3½	4½	5½
Jackson-Bienville	Male	(27) 49.3	(50) 108.4	(19) 136.9	(9) 178.2	(6) 201.3	- None
	Female	(43) 48.4	(30) 87.5	(30) 101.3	(19) 108.4	(13) 112.8	(8) 109.3
Red Dirt	Male	(31) 43.1	(51) 80.5	(19) 107.9	(16) 127.5	(7) 131.8	(5) 127.0
	Female	(28) 41.0	(43) 73.2	(24) 82.2	(15) 81.5	(4) 88.5	(7) 84.0
Sabine	Male	(2) 55.5	(7) 85.4	(1) 145.0	(1) 140.0	- None	(1) 181.0
	Female	(3) 45.5	(2) 92.4	(2) 93.0	(1) 100.0	- None	(1) 99.8
Union	Male	(10) 58.7	(8) 109.6	(2) 142.5	(6) 161.5	(1) 160.0	- None
	Female	(6) 58.0	(4) 96.7	(5) 92.8	(3) 103.5	(3) 102.1	(1) 120.0
West Bay	Male	(97) 53.5	(83) 81.3	(37) 94.8	(37) 111.8	(11) 108.3	(5) 94.0
	Female	(79) 46.8	(87) 77.1	(39) 81.1	(51) 84.9	(26) 84.3	(16) 87.8
Zemurray Park	Male	(2) 46.5	(7) 78.0	- None	(3) 106.4	(2) 116.3	(1) 133.3
	Female	(3) 33.7	(6) 65.6	(2) 77.5	(2) 86.5	(3) 92.1	(3) 79.6

TABLE II

TABLE OF COMPARISON OF COMPUTED AVERAGE LIVE WEIGHTS OF DEER KILLED ON CATAHOULA GAME MANAGEMENT AREA DURING THE 1959,1960,1961,1962,AND 1963 MANAGED HUNTS

AGE				YEAR		
		1959	1960	1961	1962	1963
1½	Male	*(46) 91.2	(45) 95.5	(40) 97.2	(26) 90.8	(34) 81.6
2½	Male	(25) 118.2	(10) 114.2	(26) 118.0	(14) 123.4	(17) 106.6
3½	Male	(34) 129.3	(10) 135.6	(20) 138.4	(12) 133.3	(16) 117.8
4½	Male	(15) 139.5	(2) 128.3	(3) 154.7	0	(7) 125.2
5½ & over	Male	(8) 142.8	(2) 139.2	(1) 139.7	(1) 145.0	(1) 148.0

*Denotes sample

Note: Due to the fact that female deer were not taken from Catahoula Game Management Area during the 1960 managed hunt, no weights for those female deer taken in either 1959 or 1961 will be listed. It is believed that a valid comparison of weights could not be made because of the two year gap in the collection of weight data.

TABLE III

TABLE OF COMPARISON OF COMPUTED AVERAGE LIVE WEIGHTS OF DEER KILLED ON CHICAGO MILL GAME MANAGEMENT AREA DURING THE 1959,1960,1961,1962, AND 1963 MANAGED HUNTS

AGE		YEAR				
		1959	1960	1961	1962	****1963
6 mo.	Male	*(89)	(42)		(58)	(24)
		55.2	66.0		52.4	63.6
	Female	(91)	(37)		***(69)	(21)
		50.5	58.2	No Females taken	48.4	60.3
1½	Male	(58)	(81)	(93)	**(103)	(43)
		105.5	112.3	129.0	114.6	121.7
	Female	(47)	(36)		(54)	(20)
		94.4	91.5		99.6	96.8
2½	Male	(26)	(76)	(52)	(64)	(34)
		143.4	155.9	154.5	158.0	155.0
	Female	(78)	(46)		(71)	(22)
		102.6	110.5		104.6	119.4
3½	Male	(29)	(48)	(38)	(39)	(19)
		178.7	188.5	174.1	187.6	178.2
	Female	(55)	(37)		(26)	(28)
		110.8	115.5		110.0	124.8
4½	Male	(13)	(22)	(18)	(18)	(2)
		208.2	203.0	216.2	217.5	246.1
	Female	(19)	(20)		(13)	(8)
		116.4	119.9		110.2	124.2
5½ & over	Male	(2)	(6)	(1)	(6)	
		198.3	195.6	225.0	220.0	None
	Female	(15)	(29)		(11)	(11)
		110.2	112.4		114.6	122.4

* Denotes sample size

** Combined average for Madison, Tensas and Franklin Parishes

*** Tensas Parish Females only

**** Madison Parish Data only

TABLE IV

TABLE OF COMPARISON OF COMPUTED AVERAGE LIVE WEIGHTS OF DEER KILLED ON EVANGELINE GAME MANAGEMENT AREA DURING THE 1959,1960,1961,1962, AND 1963 MANAGED HUNTS

AGE				YEAR		
		1959	1960	1961	**1962	1963
6 mo.	Male	*(18) 62.1	(28) 57.2	(23) 60.0		(17) 55.4
	Female	(11) 52.9	(24) 52.1	(18) 54.7		(17) 51.9
1½	Male	(26) 91.1	(20) 94.6	(26) 95.8	(22) 90.7	(18) 95.6
	Female	(11) 74.8	(12) 79.4	(14) 79.1		(9) 82.7
2½	Male	(10) 114.3	(12) 102.1	(5) 106.6	(4) 117.3	(5) 113.8
	Female	(2) 85.3	(8) 82.4	(7) 87.2		(11) 93.8
3½	Male	(11) 114.7	(9) 109.5	(11) 117.6	(5) 135.4	(5) 125.0
	Female	(4) 91.7	(14) 86.6	(8) 93.3		(7) 97.8
4½	Male	(3) 100.0	(5) 141.5	(3) 155.1	(1) 138.0	None
	Female	(4) 80.5	(6) 96.9	(3) 91.5		(5) 97.7
5½ & over	Male	(6) 115.9	(7) 131.4	(2) 154.8	(1) 143.8	None
	Female	(3) 92.3	(8) 96.0	(5) 91.6		(5) 98.2

* Denotes sample size

** Bucks only hunt in 1962

TABLE V

TABLE OF COMPARISON OF COMPUTED AVERAGE LIVE WEIGHTS OF DEER KILLED ON JACKSON-BIENVILLE GAME MANAGEMENT AREA DURING THE 1959,1960,1961,1962,AND 1963 MANAGED HUNTS

AGE		YEAR				
		1959	1960	1961	1962	1963
6 mo.	Male	*(45) 58.5	(7) 58.4	(18) 60.4	(16) 44.9	(27) 49.3
	Female	(53) 50.0	(6) 49.9	(12) 54.9	(29) 42.1	(43) 48.4
1½	Male	(60) 119.6	(24) 120.5	(27) 111.6	(26) 100.8	(50) 108.4
	Female	(35) 98.3	(9) 91.6	(7) 100.8	(22) 84.6	(30) 87.5
2½	Male	(23) 148.2	(7) 158.8	(15) 158.0	(4) 124.6	(19) 136.9
	Female	(40) 103.3	(10) 112.5	(7) 113.9	(11) 92.2	(30) 101.3
3½	Male	(11) 199.8	(5) 175.8	(14) 176.0	(10) 167.2	(9) 178.2
	Female	(26) 111.8	(2) 123.8	(10) 116.4	(14) 95.3	(19) 108.4
4½	Male	(5) 228.6		(1) 208.0	(2) 192.2	(6) 201.3
	Female	(13) 118.9	(3) 114.0	(6) 121.1	(11) 99.2	(13) 112.8
5½ & over	Male		(1) 225.0	(1) 203.8	(1) 141.0	None
	Female	(10) 115.8	(1) 82.0	(3) 116.0	(5) 96.5	(8) 109.3

* Denotes sample size

TABLE VI

TABLE OF COMPARISON OF COMPUTED AVERAGE LIVE WEIGHTS OF DEER KILLED ON RED DIRT GAME MANAGEMENT AREA DURING THE 1959, 1960, 1961, 1962 AND 1963 MANAGED HUNT

AGE				YEAR		
		1959	1960	1961	**1962	1963
6 mo.	Male	*(49)	(22)	(17)		(31)
		47.3	59.7	55.3		43.1
	Female	(35)	(20)	(18)		(28)
		45.2	53.2	50.6		41.0
1½	Male	(43)	(39)	(39)	(22)	(51)
		90.8	93.0	95.8	96.4	80.5
	Female	(35)	(15)	(12)		(43)
		73.3	83.7	78.1		73.2
2½	Male	(36)	(10)	(9)	(6)	(19)
		119.7	121.6	120.6	118.4	107.9
	Female	(30)	(17)	(8)		(24)
		84.6	86.6	84.6		82.2
3½	Male	(16)	(16)	(7)	(11)	(16)
		115.5	119.9	135.9	135.4	127.5
	Female	(21)	(7)	(3)		(15)
		85.9	93.9	83.6		81.5
4½	Male	(6)	(2)	(9)	(3)	(7)
		128.2	137.0	134.2	140.0	131.8
	Female	(16)	(8)	(3)		(4)
		88.3	93.2	92.9		88.5
5½ & over	Male	(25)	(7)	(9)		(5)
		138.3	147.1	135.4		127.0
	Female	(23)	(11)	(6)		(7)
		97.5	91.9	100.3		84.0

* Denotes sample size

** Bucks only hunt in 1962

TABLE VII

TABLE OF COMPARISON OF COMPUTED AVERAGE LIVE WEIGHTS OF DEER KILLED ON WEST BAY GAME MANAGEMENT AREA DURING THE 1959, 1960, 1961, 1962, AND 1963 MANAGED HUNT

AGE				YEAR		
		*1959	1960	1961	***1962	1963
6 mo.	Male		(23) 50.0	(55) 43.9		(97) 53.5
	Female		(41) 46.0	(63) 45.3		(79) 46.8
1½	Male	**(19) 80.9	(64) 80.3	(94) 84.2	(47) 87.1	(83) 81.3
	Female		(17) 73.6	(42) 71.7		(87) 77.1
2½	Male	(16) 98.3	(34) 97.5	(35) 102.0	(26) 102.5	(37) 94.8
	Female		(25) 74.6	(23) 76.0		(39) 81.1
3½	Male	(20) 110.4	(25) 105.4	(41) 114.8	(37) 109.7	(37) 111.8
	Female		(14) 91.1	(40) 83.4		(51) 84.9
4½	Male	(6) 136.5	(5) 103.6	(16) 127.8	(15) 125.1	(11) 108.3
	Female		(10) 84.0	(12) 81.2		(26) 84.3
5½ & over	Male	(8) 127.0	(10) 116.7	(7) 139.6	(6) 124.6	(5) 94.0
	Female		(7) 87.5	(16) 82.4		(16) 87.8

* Bucks only season in 1959

** Denotes sample size

*** "Bucks Only" season in 1962

TABLE VIII

TABLE OF COMPARISON OF COMPUTED AVERAGE LIVE WEIGHTS OF DEER KILLED ON ZEMURRAY PARK GAME MANAGEMENT AREA DURING THE 1961, 1962, AND 1963 MANAGED HUNTS

AGE		YEAR		
		1961	1962	1963
6 mo.	Male	*(5) 46.0	(2) 54.7	(2) 46.5
	Female	(4) 39.3	(3) 45.8	(3) 33.7
1½	Male	(4) 87.8	(2) 78.1	(7) 78.0
	Female	(7) 76.9	(5) 67.9	(6) 65.6
2½	Male	(3) 107.4		None
	Female	(1) 81.3	(1) 75.0	(2) 77.5
3½	Male	(5) 116.0	(4) 121.5	(3) 106.4
	Female	(3) 86.8	(1) 79.8	(2) 86.5
4½	Male	(1) 135.0	(2) 126.9	(2) 116.3
	Female	(3) 84.5	(2) 93.8	(3) 92.1
5½ & over	Male	(1) 143.8	(1) 172.9	(1) 133.3
	Female	(1) 83.8	(3) 69.6	(3) 79.6

* Denotes sample size

TABLE IX

DEER HERD COMPOSITION DATA - BASED ON FAWNS PER 100 ADULT DOES ($2\frac{1}{2}$ yrs. & up)

YEAR	CATAHOULA			CHICAGO MILL			EVANGELINE			JACKSON-BIENVILLE			RED DIRT			WEST BAY			ZEMURRAY PARK		
	Adult does	Fawns	Ratio	Adult does	Fawns	Ratio	Adult does	Fawns	Ratio	Adult does	Fawns	Ratio	Adult does	Fawns	Ratio	Adult does	Fawns	Ratio	Adult does	Fawns	Ratio
1958				81	67	83															
1959	77	71	92	167	180	108	13	29	223	89	98	110	90	84	93				37	27	73
1960				132	79	60	36	52	144	16	13	81	43	42	98	56	64	114	14	14	100
1961	33	41	124				23	41	178	26	30	115	20	35	175	91	118	130	8	9	113
1962				121	139	115				41	45	110							7	5	71
1963	73	65	89	69	45	65	28	34	121	88	92	104	50	59	118	132	176	134	10	5	50

STATE 1959 Total			STATE 1960 Total			STATE 1961 Total			STATE 1962 Total			STATE 1963 Total		
Adult does	Fawns	Ratio	Adult does	Fawns	Ratio	Adult does	Fawns	Ratio	Adult does	Fawns	Ratio	Adult does	Fawns	Ratio
473	489	103	297	264	89	201	274	137	169	189	112	450	471	105

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

WORK PLAN I

DEER INVESTIGATIONS

State of: Louisiana

Project No.: W-29R-11 Name: Statewide Wildlife Investigations

Job No.: 6 Title: Annual Inventory of Deer Areas

Period Covered: July 1, 1963 through June 30, 1964

Abstract: Deer range surveys were made in some areas and the findings made available to the Louisiana Wild Life and Fisheries Commission.

Recommendations: It is recommended that the inventory of the deer areas be continued. Recommendations for management of each area were incorporated in each report of area inventoried.

Objectives: Inventory areas for deer management information. The specific objectives are: (1) To learn as much as possible regarding the various deer ranges of the state and the herds that occupy them; (2) To recommend management measures for all deer ranges in the state; and (3) To compile a record of deer management regulations for the various ranges during the recent history of management.

Techniques Used: The techniques used are takened from previously prepared recommended procedures for making deer range surveys and the guide for deer range survey report.

The surveys are made by the investigator going into the area, and as he traveled (by boat or vehicle) making stops and walking perpendicular to the line of travel. Stops are made as often as deemed necessary by the investigator. At each stop notes are made of occurrence and use of browse and sign such as tracks, droppings, livestock, and dogs.

Local people are contacted as well as enforcement agents, Forestry Commission employees, and industrial foresters, for information concerning description of area, factors adversely affecting deer, factors that affect hunting, and economic liability of deer in area.

A narrative report was prepared on each area surveyed. The report includes description of area, history of deer herd and hunting seasons, factors adversely affecting deer, factors that affect hunting, condition of the range, condition of herd (if determined), economic liability of deer in area, recommendations for coming season, the chances of getting the herd managed along sound biological principles, and an estimate of needs to facilitate deer management in the area. All the deer range survey reports were forwarded to the Fish and Game Division office where the information is available for use in the setting of deer hunting regulations. Because of space requirements these deer range survey reports will not be reproduced here.

Prepared by: /s/ Louis E. Brunett

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

WORK PLAN I

DEER INVESTIGATIONS

State of: Louisiana

Project No.: W-29R-11 Name: Statewide Wildlife Investigations

Job No.: 7 Title: Southeastern Cooperative Wildlife Disease Study

Period Covered: July 1, 1963 through June 30, 1964

Abstract: This study is a cooperative effort between thirteen southeastern states, The University of Georgia and The United States Fish and Wildlife Service. All procedures used in this job are governed solely by the Southeastern Cooperative Wildlife Disease Study, located at the School of Veterinary Medicine, University of Georgia. The staff of this organization prepares an annual report on the activities of this group. During the past year, The Southeastern Cooperative Wildlife Disease Study requested that ectoparasites collected from deer be sent to them for identification. Using containers supplied by the S.C.W.D.S., biologists working on game management area deer checking stations collected as many ectoparasites as possible. These parasites were then mailed to the S.C.W.D.S. One field visit to Louisiana was made by S.C.W.D.S., personnel for the purpose of collecting blood samples for a study of anaplasmosis in deer.

Recommendations: It is the opinion of the study leader that the service rendered by the Southeastern Cooperative Wildlife Disease Study does not justify the expense involved. This is an opinion that is also shared by several biologists from other Southeastern States. They likewise feel that their states are not "getting their money's worth". This should not be taken to mean that the S.C.W.D.S.is not completely qualified and capable. It is our belief that the S.C.W.D.S. is both qualified and capable. However, it appears that the S.C.W.D.S. has undertaken far too many projects. The small staff of this organization cannot possibly service all of the member states as they should. The addition of the quixotic Cattle Fever Tick Study in the Virgin Islands will certainly deprive member states of more time that could be put to good use here in the southeast.

In view of the foregoing, it is recommended that the contract with the Southeastern Cooperative Wildlife Disease Study not be renewed. It is also recommended that qualified workers within the state be engaged to study the parasites and diseases of wildlife in Louisiana.

Objectives: (A) To determine the cause or causes of wildlife disease outbreaks.

(B) To develop control measures where possible.

Techniques: All techniques and procedures are determined by the Southeastern Cooperative Wildlife Disease Study.

Findings: All findings reported by S.C.W.D.S.

Submitted by: Dan Dennett, Jr.
Deer Study Leader

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

WORK PLAN I

DEER INVESTIGATIONS

State of: Louisiana

Project No.: W-29R-11 Name: Statewide Wildlife Investigations

Job No.: 8 Title: Preliminary Investigation of Introduction of Deer Browse Plants in Pine Forests

Period Covered: July 1, 1963 through June 30, 1964

Abstract: Deer browse plant seed of various species were collected in the fall and winter of 1963. Some were planted as whole fruit and others as seed removed from the fruit in the fall of 1963 and spring of 1964. Some species did not germinate and the per cent of those that did was low.

Recommendations: It is recommended that this job be continued with emphasis placed on a new search of literature to determine if anything new has been developed by other researchers to get seed of the species used to germinate since the last review of literature about three years ago. The germination tests of deer browse plant seed should be continued and those proven to germinate easily should be planted with pine or pine seedlings at different rates to determine if competition will occur between the two.

Objective: To determine if deer browse plants can be introduced into pine forests and if competition occurs between the plants and pine.

Techniques Used: During the fall and winter of 1963, fruit of various deer browse species were collected to conduct a germination test on their seed. Fruit was collected from whitebay (Magnolia virginiana), redbay (Persea borbonia), arrowwood (Virburnum dentatum), largeleaf gallberry (Ilex coricea), deciduous holly (Ilex decidua), yaupon (Ilex vomitoria), laurel greenbriar (Smilax laurifolia), honeysuckle (Lonicera Japonica), and strawberry bush (Euonymus americanus). in preparing the seed for the germination tests some were removed from the fruit and some were not.

In November 1963, in a food plot on the Evangeline Game Management Area, 100 seed of each of the following were planted: yaupon, redbay, arrowwood, whitebay, largeleaf gallberry, and strawberry bush. At the same time 100 berries (fruit) of deciduous holly, arrowwood, and whitebay were planted. These were planted in plots two feet square. Each plot was marked off in lines opening the soil to a depth of about one-half inch. The seed or fruit were placed in the lines and covered with one-quarter inch of soil.

In March, 1964, on the Evangeline Game Management Area the following were planted: whitebay fruit, whitebay seed, arrowwood seed, arrowwood fruit, arrowwood seed collected in 1962, strawberry bush seed, strawberry bush fruit, strawberry bush seed collected in 1962, deciduous holly seed, deciduous holly fruit, yaupon seed, yaupon fruit, yaupon seed collected in 1962, largeleaf gallberry seed collected in 1962, smilax laurifolia, and redbay. These were planted in the same manner as those in November, 1963.

On the Red Dirt Game Management Area in the fall of 1963, a food plot, approximately one acre in size, was plowed with a farm tractor and breaking plow. In January, 1964, the plot was disked thoroughly with a farm tractor and disk. The plot was then laid off in strips two disk widths wide. Deer browse plant seed was sown broadcast one species per strip. Part of the sown seed was covered with the disk by going one time over, one disk width of the strip. This made seed on half the strip covered. The species planted were arrowwood seed, arrowwood fruit, whitebay fruit, whitebay seed, strawberry bush seed, largeleaf gallberry seed, yaupon seed, yaupon fruit, redbay, and honeysuckle.

On the Red Dirt Game Management Area two areas burned in January, 1964, were selected to plant deer browse plant seed on. One area was on a hill and the other was in a stream bottom. Plots were marked off in a 12 foot square manner on each area and one specie was planted per plot. The seed or fruit were planted in March, 1964. Those planted were yaupon seed, yaupon fruit, yaupon seed collected in 1962, redbay, whitebay seed, whitebay fruit, arrowwood fruit, arrowwood seed, arrowwood seed collected in 1962, strawberry bush seed, strawberry bush seed collected in 1962, largeleaf gallberry seed, largeleaf gallberry seed collected in 1962, deciduous holly seed, deciduous holly fruit, honeysuckle, and smilax.

In February, 1964, deer browse plant seed were planted in plots on the Bodcau Game Management Area. Each plot represented a different soil type. The first plot was a food plot that had been cultivated each year for several years. Two strips were prepared with a farm tractor and disk. One strip was planted to yaupon seed and the other to yaupon fruit. Neither the seed nor fruit were covered.

One plot was an old field that had been allowed to grow up in broom sedge (Andopogon sp.). The area was prepared for seeding by disking thoroughly in alternate strips of a prepared strip and a rough or undisked strip. One species was planted to each prepared strip and adjacent rough on one side. Species planted were yaupon seed, yaupon fruit, arrowwood seed, arrowwood fruit, smilax, redbay, whitebay fruit, whitebay seed, deciduous holly, honeysuckle, strawberry bush, and largeleaf gallberry. For some species two strips were planted. The seed on the disked strips were not covered.

Another plot was planted in an old field that had been allowed to grow up in broom sedge and had been burned. Strips were prepared in this plot and planted in the same manner as described in the above paragraph. Species planted in this plot were yaupon seed, arrowwood seed and fruit, whitebay seed and fruit, redbay, largeleaf gallberry, honeysuckle, and smilax. None of these were covered.

The fourth plot was in another old field that had grown up in broom sedge. Five strips were planted and they had been prepared by disking part and leaving an adjacent rough. Species planted were yaupon seed, redbay, arrowwood seed and fruit, and smilax.

Seed of some deer browse plants were planted in boxes at the Alexandria office. Ammunition boxes 26 inches long by 14 inches wide by four inches high were obtained from the Army at Fort Polk in 1961. These boxes have been used each year since and have been mentioned in annual reports. A top of one inch by two inch lumber covered with one-quarter inch mesh hardware cloth was made for each box to exclude rodents. The boxes were filled with a mixture of one part peat moss to three parts sand. Two hundred seed were put in each box on a one inch grid pattern. They were covered lightly with sand and peat moss and kept damp. Species planted, 200 per box, in March, 1964, were: whitebay fruit, smilax, deciduous holly, arrowwood seed and fruit, honeysuckle, redbay-seed covered, redbay-seed not covered, largeleaf gallberry, yaupon seed, yaupon fruit.

Some redbay and arrowwood planted in boxes in the spring, 1962, and some arrowwood stratified for 100 days and planted the spring of 1963 were left in the boxes.

Findings: Of the seed planted on Evangeline in November 1963, redbay was the only one found to have germinated. Out of the 100 planted eight came up. Of those planted on the same area in March, 1964, none came up.

On Red Dirt of those planted in the strips on the disked plot only redbay came up. Here again eight plants were found. On the burned plots none were found that had germinated.

Of all the seed planted on the Bodcau Game Management Area one redbay and a few smilax plants were found.

In the seed germination study carried out at the Alexandria office where seed of deer browse plants were planted in boxes, it was found that 12 per cent of the honeysuckle, eight per cent of the redbay not covered, and six per cent of the redbay covered had germinated. None of the others came up.

It was also found that of the redbay and arrowwood planted in the spring of 1962 some had germinated this spring and they were eight and 14 per cent respectively. Of the arrowwood seed stratified for 100 days before planting in 1963, 13 per cent had germinated in the spring of 1964.

Prepared by: /s/ Louis E. Brunett

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

WORK PLAN I

DEER INVESTIGATIONS

State of: Louisiana

Project No.: W-29R-11 Name: Statewide Wildlife Investigations

Job No.: 9 Title: Preliminary Survey of Parasites of White-tailed Deer of Louisiana

Period Covered: July 1, 1963 through June 30, 1964

Abstract: The heads of ninety (90) White-tailed deer were examined for Meningo Worms (Odocoileostrongylus tenius) and Nasal Bots (Cephenemyia phobiger). These heads were taken from nine different game management areas throughout the state. For each head, a record was kept of the age, sex, number of Meningo Worms found, and the number of Nasal Bots found. These data suggest that the Meningo Worm is either rare or entirely absent from the Mississippi River Flood Plain. Only one Meningo Worm was found in this region and this was in a deer from Caldwell Game Management Area, which is only a short distance from the upland Long Leaf Pine region. This investigation does not reveal any apparent pattern regarding the distribution and degree of infection of the Nasal Bot due to the small number of deer found to be infected with them.

Three adult female deer from Possum Point in East Carroll Parish were autopsied by parasitologists from Tulane University. These deer were found to have an extremely light parasite infection, contrary to what was anticipated from this over-populated deer herd.

Recommendations: As in past years, it is recommended that this study be continued and a particular effort should be made to conduct these investigations in as many areas as possible. Parasite identification and post mortem examinations will be made by members of the staff of the Department of Zoology at Tulane University or any other competent authority. It would even be a sound investment to hire some individual or organization to conduct this investigation. That way we would be assured of getting the kind of data that we need. There is still much to be learned about the parasites of the White-tailed deer in Louisiana. A continued effort should be made to take as many color photographs of parasites and the associated pathology as possible.

Objectives: The primary objective of this job is to prepare a check list of the commonly encountered forms of deer parasites and to familiarize our game technicians with these forms and their associated pathology. Technicians will also be familiarized with the life cycles of the parasites and the methods of post mortem examination. A complete series of color slides will be made of these parasites.

Techniques Used: During the course of these investigations, standard post mortem examination procedures were used. Each deer collected was methodically dissected and inspected for parasites or tissues that appeared to be abnormal. Each subdivision of the digestive tract was examined for parasites. Deer heads were examined after the skin was removed by using a fine toothed standard hacksaw. A cut was made from a point just above the orbit of the skull to a point just above the auditory meatus. This cut was made in a manner so that approximately the dorsal one-third of the brain case could be flipped back, thereby exposing the brain. This cut would admittedly damage the Meningo Worms (Brain Worms) in some cases but not so that they could not be easily recognized. Since this investigation is to be regarded as preliminary, we were attempting only a survey to determine geographic distribution and approximate ranges of infection. It is felt however, that even a quantitative study could be conducted using this same technique, since in practically every case those worms damaged by the sawing process can be reconstructed and accurately counted.

Nasal Bots (Nose Bots) were collected and counted by tearing open the nasal sinuses and passages with a large screwdriver.

Findings: Three adult female deer were collected and examined on the Possum Point. All were pregnant and carrying two embryos. A thorough examination revealed only the Gullet Worm (Gongylonema). This parasite is not generally considered to be responsible for serious pathology, unless it occurs in extremely large numbers. In those deer examined, one had two Gullet Worms, one had one, the other had none. This is very unusual. Normally, the deer examined thus far in Northeast Louisiana have each had several Gullet Worms.

It is also very unusual that deer from an over-populated deer herd, such as the one from Possum Point, had so few parasites. These deer were in excellent physical condition.

A summary of the findings of the examination of ninety deer heads from nine different Louisiana game management areas can be found in Table 1. Ten deer heads were examined from each game management area. Deer heads were collected from Caldwell G.M.A. in Caldwell Parish, Catahoula G.M.A. in Winn and Grant Parishes, East Carroll Parish, Evangeline G.M.A. in Rapides Parish, Fort Polk G.M.A. in Vernon Parish, Jackson-Bienville G.M.A. in Jackson and Bienville Parishes, Red Dirt G.M.A. in Natchitoches Parish, Sabine G.M.A. in Sabine Parish, and West Bay G.M.A. in Allen Parish. A complete tabulation of the results of the examination of deer heads can be found in Table 2.

This preliminary investigation of the distribution and abundance of the Meningo Worm in Louisiana is a follow-up study of the one initiated by the Southeastern Cooperative Wildlife Disease Study in 1961. Although the S.C.W.D.S. did not include any examination for nose bots in their investigation, it was felt that this phase of routine deer head examination required little additional time and effort and would give us useful data on this particular deer parasite.

The data obtained during this investigation roughly parallels that obtained from the Southeastern Cooperative Wildlife Disease Study investigation in 1961. It appears that the Meningo Worm is either rare or entirely absent from the Mississippi River Alluvial Flood Plain. This conclusion is based on the fact that only one Brainworm has ever been found in this region. The one worm that was found came from a deer from Caldwell G.M.A. which is just a few miles from the Longleaf Pine Region (Brown 1945) where this parasite is thought to be fairly common. No brainworms have been found in deer from East Carroll G.M.A. or in previous studies (S.C.W.D.S. 1961) on Chicago Mill G.M.A. Since Caldwell G.M.A. is only across the Ouachita River from the Longleaf Pine Region where the brainworm is thought to occur, an infected deer from the Longleaf Pine Region could easily have traveled this short distance to the game management area and been killed.

No Brainworms were found in the deer from either Jackson-Bienville G.M.A. or Catahoula G.M.A. This parasite has been previously recorded from Jackson-Bienville G.M.A., but has never been recorded from Catahoula G.M.A. There is apparently some ecological factor that is unfavorable to the life cycle of the Meningo Worm present in these timber types or soil types. It could possibly be that the intermediate host is rare or not present. This is indeed puzzling because the brainworm has been found previously on another game management area in the same timber type. (Union G.M.A., S.C.W.D.S. 1962). This is a problem that would be worthy of further pursuit. A much larger sample would be needed to critically evaluate this problem.

Due to the small number of deer found to be infected with Nasal Bots no conclusion could be reached regarding the distribution and degree of infection of this parasite.

Submitted by: Dan Dennett, Jr.,
Deer Study Leader

Table 1: Summary of results of examination of deer heads taken from deer killed on game management areas during the 1964 hunting season.

Area	% of Sample Having Brainworms	% of Sample Having Nose Bots
Caldwell G. M. A.	10%	20%
Catahoula G. M. A.	0	0
East Carroll G. M. A.	0	0
Evangeline G. M. A.	80%	0
Fort Polk G. M. A.	60%	0
Jackson-Bienville G. M. A.	0	20%
Red Dirt G. M. A.	80%	0
Sabine G. M. A.	70%	10%
West Bay G. M. A.	70%	0

Table 2: Results of Examination of deer heads taken from deer killed on Louisiana Game Management Areas during the 1963 deer season.

Area	Age	Sex	Number of Brainworms	Number of Nose Bots
Caldwell G. M. A.	3½	F	0	0
Caldwell G. M. A.	1½	F	0	0
Caldwell G. M. A.	5½	F	1	4
Caldwell G. M. A.	4½	F	0	0
Caldwell G. M. A.	3½	F	0	0
Caldwell G. M. A.	2½	F	0	0
Caldwell G. M. A.	1½	F	0	0
Caldwell G. M. A.	1½	F	0	6
Caldwell G. M. A.	1½	M	0	0
Caldwell G. M. A.	3½	F	0	2
Catahoula G. M. A.	1½	F	0	0
Catahoula G. M. A.	5½	F	0	0
Catahoula G. M. A.	3½	F	0	0
Catahoula G. M. A.	3½	F	0	0
Catahoula G. M. A.	1½	F	0	0
Catahoula G. M. A.	5½	F	0	0
Catahoula G. M. A.	3½	F	0	0
Catahoula G. M. A.	2½	F	0	0
Catahoula G. M. A.	5½	F	0	0
Catahoula G. M. A.	5½	F	0	0
East Carroll G. M. A.	2½	F	0	0
East Carroll G. M. A.	1½	F	0	0
East Carroll G. M. A.	1½	M	0	0
East Carroll G. M. A.	2½	F	0	0
East Carroll G. M. A.	1½	F	0	0
East Carroll G. M. A.	2½	F	0	0
East Carroll G. M. A.	1½	M	0	0
East Carroll G. M. A.	5½	F	0	0
East Carroll G. M. A.	1½	M	0	0
East Carroll G. M. A.	1½	F	0	0

Table 2: (Continued)

Area	Age	Sex	Number of Brainworms	Number of Nose Bots
Evangeline G. M. A.	2½	F	7	0
Evangeline G. M. A.	1½	F	4	0
Evangeline G. M. A.	1½	M	3	0
Evangeline G. M. A.	2½	F	1	0
Evangeline G. M. A.	4½	F	6	0
Evangeline G. M. A.	5½	F	5	0
Evangeline G. M. A.	1½	F	0	0
Evangeline G. M. A.	3½	F	11	0
Evangeline G. M. A.	5½	F	2	0
Evangeline G. M. A.	5½	F	0	0
Fort Polk G. M. A.	6 mo	F	0	0
Fort Polk G. M. A.	6 mo	F	0	0
Fort Polk G. M. A.	3½	F	3	0
Fort Polk G. M. A.	6 mo	F	1	0
Fort Polk G. M. A.	1½	F	0	0
Fort Polk G. M. A.	3½	F	5	0
Fort Polk G. M. A.	3½	F	2	0
Fort Polk G. M. A.	2½	F	0	0
Fort Polk G. M. A.	5½	F	6	0
Fort Polk G. M. A.	3½	F	5	0
Jackson-Bienville G. M. A.	1½	F	0	0
Jackson-Bienville G. M. A.	5½	F	0	14
Jackson-Bienville G. M. A.	1½	F	0	0
Jackson-Bienville G. M. A.	5½	F	0	5
Jackson-Bienville G. M. A.	2½	F	0	0
Jackson-Bienville G. M. A.	1½	F	0	0
Jackson-Bienville G. M. A.	3½	F	0	0
Jackson-Bienville G. M. A.	1½	M	0	0
Jackson-Bienville G. M. A.	3½	F	0	0
Jackson-Bienville G. M. A.	1½	F	0	0

Table 2: (Continued)

Area	Age	Sex	Number of Brainworms	Number of Nose Bots
Red Dirt G. M. A.	1½	F	0	0
Red Dirt G. M. A.	4½	F	3	0
Red Dirt G. M. A.	5½	F	0	0
Red Dirt G. M. A.	3½	F	9	0
Red Dirt G. M. A.	1½	F	1	0
Red Dirt G. M. A.	1½	F	2	0
Red Dirt G. M. A.	1½	F	2	0
Red Dirt G. M. A.	1½	F	8	0
Sabine G. M. A.	6 mo	M	2	0
Sabine G. M. A.	6 mo	M	1	0
Sabine G. M. A.	1½	M	4	49
Sabine G. M. A.	5½	F	4	0
Sabine G. M. A.	6 mo	M	4	0
Sabine G. M. A.	1½	F	5	0
Sabine G. M. A.	6 mo	F	0	0
Sabine G. M. A.	1½	M	7	0
Sabine G. M. A.	6 mo	F	0	0
Sabine G. M. A.	2½	F	0	0
West Bay G. M. A.	5½	F	5	0
West Bay G. M. A.	3½	F	7	0
West Bay G. M. A.	4½	F	2	0
West Bay G. M. A.	1½	F	0	0
West Bay G. M. A.	2½	F	6	0
West Bay G. M. A.	3½	F	0	0
West Bay G. M. A.	2½	F	0	0
West Bay G. M. A.	1½	F	3	0
West Bay G. M. A.	1½	F	7	0
West Bay G. M. A.	2½	F	2	0

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

WORK PLAN I

DEER INVESTIGATIONS

State of: Louisiana

Project No.: W-29R-11 Name: Statewide Wildlife Investigations

Job No.: 11 Title: Interrelationships of Wildlife and Plant Communities in Loblolly-Shortleaf Pine-Hardwood Forest of Central Louisiana

Period Covered: July 1, 1963 through June 30, 1964

Abstract: The fences of the three enclosures and controls were checked, and the rights-of-way maintained. The levees and spillways of the watering ponds were also maintained. The drive to verify the presence of the proper number of deer revealed each enclosure was properly stocked at the termination of the drives with the exception of the eight deer enclosure. It had seven deer. One female deer was released in this enclosure to bring it up to the required number.

Recommendations: It is recommended that this job be continued with the same objectives as in the past.

Objective: This job has three objectives. They are: (1) To check the fence around three 160 acre enclosures and their 20 acre controls and to keep the fence right-of-way free of brush and to maintain the levees and spillways of the watering ponds; (2) To verify the presence of deer in each enclosure; and (3) To get weights and body measurements of deer in the enclosure and replace the deer in an orderly manner.

Techniques Used: To check the fence around the three 160 acre enclosures and their 20 acre controls every two weeks and immediately after each heavy rain and high wind for washouts, trees or tree branches that may have blown on it. To control bushes and briars on the fence right-of-way a farm tractor and rotary brush cutter was used. Fertilizer and seed were to be applied to the levees and spillways of the watering ponds.

To verify the presence of deer in each enclosure, standers and drivers were used. Each enclosure is 2112 feet wide and 3300 feet long. The standers were placed along the access road that crosses the narrow width of each enclosure. The standers all faced in one direction and counted the deer that passed between them and the next stander. The drivers were placed at a distance of 30 feet along the fence on one end of the enclosure. On signal the drivers walked toward the access road where the standers were. After reaching the road where the standers were, the drivers walked around the fence to the opposite end of the enclosure, took up the proper distance, and on signal drove toward the standers. The drivers checked all felled tree tops and thickets for deer. The drivers were to count any deer that passed back through the line to their right between them and the next driver.

To get weights and body measurements of the deer and to repla the deer in an orderly manner three deer from the eight deer enclosure and one from the two deer enclosure were to be shot. Replacement deer were to be released in each enclosure to maintain the proper number.

Findings: The fence was checked, the fence right-of-way maintained, and the spillways and levees to the watering ponds were maintained and fertilized. Fertilizer was also put on established sod at various places along the fence right-of-way. To establish a sod in some places along the right-of-way fertilizer and bahia grass seed were applied.

The drive to verify the presence of deer in each enclosure revealed two in the two deer enclosure, four in the four deer enclosure, and seven in the eight deer enclosure. A nine month old female was trapped on the State Forest near Woodworth, La., and released in the eight deer enclosure. It was X-rayed by a local veterinarian to make sure it was not pregnant. This deer brought the eight deer enclosure up to the desired stocking level.

No deer were removed from any of the enclosures. Therefore, no body weights and measurements were obtained.

Prepared by: /s/ Louis E. Brunett

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

WORK PLAN I

DEER INVESTIGATIONS

State of: Louisiana

Project No.: W-29R-11 Name: Statewide Wildlife Investigations

Job No.: 12 Title: Rumen Content Analysis

Period Covered: July 1, 1963 through June 30, 1964

Abstract: The progress of this study has been dependent on the development and evaluation of a new technique which involves microscopic examination of the food particles from deer stomach samples. A graduate student at the Louisiana State University School of Forestry and Wildlife Management working in conjunction with the Cooperative Wildlife Research Unit has been working on this technique. This technique was in the final stages of evaluation and development at the time this report was written. This type of analysis will give a very high degree of accuracy in the identification of the food particles. No report on the analysis of the stomach samples already collected has been received.

Recommendations: Although the progress of this job has been much slower than anticipated, it appears that we are very close to being able to process stomach samples quickly and accurately. Since a detailed study of the seasonal food habits of the White-tailed Deer in Louisiana has long been needed, it is recommended that a continue effort be made by Commission personnel to supply the Cooperative Wildlife Research Unit at Louisiana State University with as many stomach samples as they might require to complete this study.

Objectives: This job is designed to provide us with detailed information concerning the food habits of the deer in Louisiana.

Initially, the emphasis will be placed on collecting samples during the hunting season so that we will be able to better understand the relationship between available hunting season foods and the low point in range carrying capacity. This study was aimed primarily at deer herds occupying the swamp areas of the drainage into the Lake Pontchartrain System, the lower Mississippi-Atchafalaya River Systems and those herds in the coastal marshes.

Techniques Used: This study was originally intended to be made by comparing the fragmentary food particles to known specimens of plant material (leaves, twigs, buds, fruits, etc.). Such characteristics as leaf margins, venation, apices, petiole structure and seeds were to be used in the identification of the rumen contents. An occular estimate was to be made of the percentages of volumetric occurrence of the various plant species present.

The Louisiana Cooperative Wildlife Research Unit has expressed the desire to examine as many deer stomachs as possible. Since one of the first investigations being undertaken by this unit is a food habit study of the White-tailed Deer in Louisiana, an intensive search of the literature by their personnel has revealed a possible technique of identification of plant material by microscopic examination of the stomata. This technique makes it possible to positively identify small fragments of plant material that would not have been identifiable using the methods originally described for this job. The evaluation of this technique is not complete at the time this report is being written.

Findings: The analysis of the stomach samples that have thus far been collected and forwarded to the Cooperative Wildlife Research Unit has not yet been received. A report will be written as soon as the results of the stomach sample analysis has been received.

Submitted by: Dan Dennett, Jr.
Deer Study Leader

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

WORK PLAN I

DEER INVESTIGATIONS

State of: Louisiana

Project No.: W-29R-11 Name: Statewide Wildlife Investigations

Job No.: 14 Title: Publication on Louisiana Deer

Period Covered: July 1, 1963 through June 30, 1964

Abstract: Background and supporting data were assembled and reviewed. A basic outline for the publication was prepared.

Recommendations: It is recommended that this job be continued with the same objective as was set forth for the year 1963-64.

Objective: To prepare a publication for distribution to interested citizens and sportsmen from deer data that has accumulated through the years 1949-63.

Techniques Used: Background and supporting data relative to the publication were assembled. These data have been reviewed.

A basic outline for the publication has been prepared. Comments relative to the content of this outline have been received from supervisors and collaborators.

A rough draft of the publication should be prepared by the end of Calendar Year 1964.

Prepared by: /s/ Louis E. Brunett

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

WORK PLAN I

DEER INVESTIGATIONS

State of: Louisiana

Project No.: W-29R-11 Name: Statewide Wildlife Investigations

Job No.: 15 Title: Preliminary Investigation of Palatability of sprouts Produced by Herbicide Treated Browse Species

Period Covered: July 1, 1963 through July 1, 1964

Abstract: A study area was set up to try to produce sprouts by treating deer browse plants with herbicide, burning, and cutting. The same plot that had the browse species treated with 2,4,5-T was also burned. One plot had the browse species cut with a brush blade. An abundance of sprouts were produced on both plots. The palatability of some species was increased by the production of sprouts. Some plants considered desirable deer browse species produced sprouts that were utilized lightly or not at all.

Recommendations: It is recommended to continue this job and to have the sprouts, that are produced by the three methods, analyzed chemically for the retention of herbicide and for the per cent of crude protein, calcium, and phosphorus.

Objectives: The objective of this job was to determine if sprouts produced by 2,4,5-T treated browse species retained the herbicide and the effect it had on their palatability. It was to be desired to determine if deer would make a choice between sprouts produced by plants treated by herbicide, burned, or cut.

Techniques Used: To accomplish the objective of this job it was decided to try to induce sprouting of deer browse species by three methods: (1) herbicide treatment, (2) burning, and (3) cutting. A study area was selected on the Red Dirt Game Management Area as it was free of cattle. This area was situated in a stream bottom that was extremely wide. The overhead canopy of the study area was of medium density and made up of loblolly pine (*Pinus taeda*), white oak (*Quercus alba*), water oak (*Quercus nigra*), and beech (*Fagus grandifolia*). The understory was made up of black gum (*Nyssa sylvatica*), maple (*Acer rubrum*), spring huckleberry (*Vaccinium elliotti*), yaupon (*Ilex vomitoria*), azalea (*Rhododendion canescens*), water oak, sweetleaf (*Symplocos tinctoria*), witch-hazel (*Hamamelis virginiana*), whitebay (*Magnolia virginiana*), parsley hawthorn (*Crataegus marshalli*), redbay (*Persea borbonia*), snowbell (*Styrax americana*), largeleaf gallberry (*Ilex coriacea*), candleberry (*Sebastiana ligustrina*), and flowering dogwood (*Cornus florida*). This area was chosen because a variety of plants could be treated on a small area.

The study area was divided into three plots. Each plot was 100 feet wide and 200 feet long with a 50 foot buffer zone between. Deer browse species on one plot of desirable and intermediate preference were treated with 2,4,5-T (four pounds acid equivalent per gallon) at a concentration of eight pounds acid equivalent per hundred gallons of water and diesel oil emulsion. The herbicide was applied to each plant through the use of a back pack type sprayer.

Deer browse species, on one plot, considered to be of desirable and intermediate preference were cut with a brush blade. There was no effort made to cut these at any specific height. The cut was made at a convenient height anywhere near ground level to 18 inches.

A plot was selected to be burned. However, due to a misunderstanding of the field personnel it was not burned. Field personnel burned the same plot that had been treated with the herbicide.

This left a set up of a plot that had the browse species cut and one plot that had the deer browse species treated with herbicide plus being burned.

It was decided to make the necessary observations to determine if there was a choice, by deer, of the sprouts produced on the deer browse species as treated in the above manner.

Periodic observations were made of the plots.

Findings: The results of the field observations showed that there were an abundance of sprouts produced on both plots. The sprouts had made luxuriant growth. There was no significant difference in the amount of deer usage between the two plots. It was noted that on both plots there was no usage found on redbay or whitebay and very little on yaupon or largeleaf gallberry. Those species are considered desirable on this particular range. On both plots practically every sprout on blackgum, maple, and water oak had been browsed. The sprouts on spring huckleberry, a plant if intermediate preference, were highly utilized. The sprouts of two intermediate preferred species, azalea and parsley hawthorn, showed light use. The sprouts of witch-hazel and snowbell, two undesirable species were used heavily. Dogwood on both plots put on an abundance of sprouts and none were found to have been browsed.

It was found that deer did not use the sprouts produced by plants in thickets or those that a brush top had fallen on.

Prepared by: /s/ Louis Brunett

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

WORK PLAN I

DEER INVESTIGATIONS

State of: Louisiana

Project No.: W-29R-11 Name: Statewide Wildlife Investigations

Job No.: 16 Title: Investigation of Feasibility of Winter Plantings for Deer

Period Covered: July 1, 1963 through June 30,1964

Abstract: Two acres of plots were planted to wheat in one of two 40 acre deer enclosures on the Red Dirt Game Management Area. Each enclosure was stocked with four wild trapped deer.

Weldwire cage exclosures indicated a total production of 12,284 pounds of wheat. Browse checks indicated that natural browse was utilized excessively in each area as was the wheat which was planted in the "south 40". Three deer died in the "north 40" apparently of malnutrition. Three deer survived in the south 40 and appeared to be in good condition when released. One deer from each enclosure was not accounted for.

Recommendations: It is recommended that this study, with the procedures as used during this period, be discontinued. However, it is recommended, in order to further evaluate the validity of winter plantings for deer, that a study be conducted for the next two years involving honeysuckle for one year and honeysuckle and wheat for the next. This study is to be carried out in the two 40 acre deer corrals on the Red Dirt Game Management Area. For the 1964-65 period of the study two acres of honeysuckle is being established in the north 40. There will be no wheat planted. The use of honeysuckle for this year will be evaluated using the same procedures as used for the wheat during the period of this report. During the 1965-66 period of the study evaluate the use of honeysuckle in one 40 against wheat in the other.

It is further recommended to conduct a study to determine the effect that browsing will have on the production of green forage by wheat.

Objectives: Determine the feasibility of establishing winter plantings for deer. Determine the amount of forage produced per acre of planting.

Techniques Used: This study was conducted in two 40 acre deer corrals on the Red Dirt Game Management Area. Hereafter referred to as the north 40 and south 40. The two corrals are in typical Red Dirt timber types and topgraphy.

Red Dirt is located in northwest Louisiana, in Natchitoches Parish, and is approximately 36,000 acres in size. It is situated in the transition zone of the longleaf pine timber type of west Louisiana and the loblolly-shortleaf pine-hardwood type of the northwestern portion of the state. The primary timber type, on the area, is longleaf pine in natural stands. The topography is made up of gently rolling hills and is considered well drained. Three streams are found on this area with numerous intermittent streams and drains well scattered over the entire area. Some hardwoods are found along the streams and on some of the sandy ridges.

In the fall of each year on Red Dirt plots have been planted to wheat. This wheat was planted for turkey but deer consumed it in great quantities. The seeding and fertilization rate was two bushels of seed and 200 pound of 12-12-12 fertilizer per acre.

For the purpose of this study a total of two acres within six plots were planted to wheat in the south 40. No wheat was planted in the north 40. In establishing the wheat plots natural openings were used as much as possible. Some clearing of brush and trees around the periphery of the natural openings was done to obtain the required acreage.

The soil of the plots was broken with a farm tractor and breaking plow. Prior to planting, in early October, the plots were well disked and fertilized. The fertilizing and seeding rate was 200 pounds of 12-12-12 fertilizer and two bushels of seed per acre.

To protect some wheat from being utilized, by deer, 20 exclosure cages were constructed from 1 x 2 inch weld wire. The cages were made round in shape and covered an area equal to one meter square. They were two feet in height.

The protective cages were placed randomly over the six plots. It was decided to put four cages per plot in three that were between one-third and one-half acre in size; three cages per plot in the two that were between one-quarter and one-third acre in size; and two cages in the one plot that was approximately one-quarter acre in size.

The place where each protective cage was to be put was determined mechanically. The length and width of each plot were determined. Numbers were put in a hat to represent points at five foot intervals down the center of the plot. Numbers to represent the number of cages per plot were drawn from the hat. Through these points lines running the width of the plots would pass. Numbers were drawn representing points at five foot intervals along the lines running the width of the plot. These numbers represented the place where the cages would be centered over.

Both corrals were stocked with four deer each. The deer were trapped on the Alexander State Forest, near Alexandria, La.

Two deer were placed in the north 40 on October 31, 1963, and the stocking was completed with two more on November 7, 1963. The deer placed in the north 40 were two adult females, one of which weighed 80 pounds and the other 90 pounds, and two females that were fawns in the spring of 1963, that weighed 35 and 40 pounds. This was a total live weight of 245 pounds. It was assumed that four deer per 40 acres did overstock the enclosures excessively.

The stocking of the south 40 was started on November 5, 1963, with an adult female that weighed 75 pounds. On November 6, an adult female weighing 80 pounds and a young 1963 buck fawn that weighed 50 pounds were released in this enclosure. The stocking of this corral was completed on November 9, with the release of an adult female that weighed 80 pounds. This was a total live weight of 285 pounds in this corral on completion of the stocking.

Beginning on December 19, 1963, inspection trips were made to the corrals every two weeks. On these trips usage of the wheat was observed and the usage on the browse plants was recorded. Usage on ten plants of preferred and non-preferred species that had been utilized was recorded. Each of the ten plants was picked at random while walking in each corral. During each check approximately the same route was traveled. This made it possible for some of the same plants to be checked each time. Each plant was checked by counting the number of stems available and then counting the number utilized. With these two figures a percentage of utilization was calculated.

Photographs, both black and white and colored slides, were made of the wheat in relation to the protective cages on each visit. Both types of pictures were made of the usage on the browse plants, but not on every visit.

On March 17, 1964, the wheat under the protective cages was clipped and weighed to determine the amount that had been produced. Five pounds, green weight, of clipped wheat was air dried to obtain a dry weight conversion factor in order to compute total production on a dry weight basis.

Findings: The wheat on the plots was utilized from the time the four deer were released in the south 40. The utilization increased and it appeared that just about as fast as the wheat put on new growth it was eaten. The wheat under the protective cages grew at the expected rate. It was apparent as to the amount of wheat being utilized as the winter progressed (Fig. 1 through 6).

The clipping of the wheat amounted to a gross weight of 30 pounds and six ounces in the green state. This represents a total of 6,142 pounds produced per acre of 12,284 pounds on the two acres. However, this does not take into consideration the fact that the wheat protected from the deer did not stool out. It is common knowledge in agricultural practices that if a plant such as wheat is bitten off by cattle, or deer in this case, that it will stool out. When this occurs there is an increase in the number of stems put out from the original plant. The wheat under the protective cages did not get bitten off; therefore, it did not stool out.

Considering the total amount of wheat (12,284 pounds) calculated to have been produced on the two acres it can be figured as what was available daily. Beginning on November 5, 1963 when the first deer was released in the south 40 and going to March 17, 1964 when the protected wheat was clipped it was found to be 133 days. By dividing this 133 days into the total produced on the two acres gives a quotient of 92 pounds produced per day on two acres. Assuming there were four deer in this enclosure, the 92 pounds per day would have amounted to 23 pounds per day available per animal. If there were three deer in this enclosure, it would have been approximately 30 pounds available per day per deer.

The five pounds clipped wheat when air dried weighed 1 pound 1 ounce. By establishing a ratio of 1 pound 1 ounce to five pounds as compared to 12,284 pounds to x it was calculated that the total amount of wheat (12,284 pounds) air dried would have weighed 2610 pounds. This would have amounted to 1305 pounds air dried wheat per acre. Webb (1963) reports a production figure of 1415 pounds oven dried wheat produced on food plots in South Carolina.

Dividing 133 days (the number of days from the time the first deer was released in the south 40 until the wheat was clipped) into 2610 pounds, total air dry weight for two acres, we arrive at a figure of 19 pounds air dry wheat available daily. For four deer this would have been approximately 5 pounds available per day per deer. Or for three deer there would have been approximately 6 pounds air dry wheat available per deer per day.

The above daily production figures indicate that there was enough wheat available each day to satisfy the requirements for the deer. However, due to the amount of natural browse consumed and as close to the ground as the plants were eaten there apparently was less produced than indicated. Apparently something is wrong. Just what is not clear at this time. It is possible that several things could have happened. It is possible that a great amount of wheat was pulled up by the browsing animals. The wheat could have been eaten so close for so long that it lost its vigor. Other studies should be conducted to try to determine what did happen.

The checks of the utilization on the plants revealed that those that remained green or were tardily deciduous were utilized heavily while the deciduous species were not utilized to a great extent. This was true in each corral. However, more usage was recorded in those species in the north 40.

The vegetation check on February 7, 1964 revealed that in the north 40 the percentage of stems browsed was greater (Table 1) on the species checked with the exception of redbay and whitebay (Table III).

The check of March 2, 1964, showed that in both corrals the utilization on some species was approximately the same (Tables II & IV). However, in the north 40 (Table II) more of the deciduous species were utilized than in the south 40 (Table IV). In both corrals deer rode down some species, such as largeleaf gallberry, redbay, and yaupon in order to browse it, but it was more evident in the north 40.

Browsing of portions of leaves of redbay, whitebay and sweetleaf was the first utilization noted after the enclosures were stocked. As the winter progressed utilization became more severe; all of the leaves and more of the stems were used. Stem use was especially heavy in the north 40 where no wheat had been planted.

In early March while making a check of the vegetation in the north 40, one of the mature deer was found dead. An examination of the bone marrow indicated it had died of malnutrition. A short search was made for the other deer or tracks. Only one set of tracks was found. A few days later an organized search was made in the north 40 in an effort to locate the other deer. Another mature deer and one of the young ones were found dead. This accounted for three deer. The search was continued looking for the other young deer. It was not found. It could have died earlier or possibly escaped. It was established that three of the deer, two mature and one young, did die from malnutrition.

In the south 40 sightings of some of the deer on several occasions and by several individuals indicated that they were in good condition. An effort was made to try to drive these deer from this corral. During the drive only three deer were found. The deer were not removed from this enclosure on this date, but were removed later. Speculation as to what happened to the fourth deer in this enclosure is that it escaped sometime previous to the drive.

Prepared by: /s/ Louis E. Brunett

TABLE I

Results of Browse Survey Conducted In North 40 Deer Corral

On February 7, 1964

Species	Percent Utilized On Each Plant Checked										Average Percent
	1	2	3	4	5	6	7	8	9	10	
Azalea	25	0	0	30	0	10	0	0	0	0	6.5
Blackgum	0	0	0	0	0	0	0	0	0	0	0
Dogwood	18	33	0	85	20	18	28	0	3	15	22
Largeleaf Gallberry	100	100	100	100	100	100	100	100	100	100	100
Maple	0	0	0	0	0	0	0	0	0	0	0
Possumhaw Viburnum	50	40	50	25	0	0	0	30	0	14	20.9
Redbay	16	5	2	2	14	2	5	3	6	4	8.9
Sassafras	0	0	0	8	0	0	17	0	0	0	2.5
**Spring Huckleberry	100	100	0	0	70	0	-	-	-	-	45
Sweetleaf	4	18	45	7	8	17	70	97	9	50	35.4
*Water Oak	60	-	-	-	-	-	-	-	-	-	60.0
Whitebay	28	98	12	50	10	0	0	35	74	10	31.7
Yaupon	100	95	100	50	100	100	100	100	95	85	92.5

* Only one plant checked

** Only six plants checked

TABLE II

Results of Browse Survey Conducted in North 40 Deer Corral

On March 2, 1964

		Percent Utilized On Each Plant Checked									
Species	1	2	3	4	5	6	7	8	9	10	Average Perce
Azalea	0	10	0	0	0	5	15	0	0	5	3.5
Blackgum	0	0	0	0	0	0	0	0	0	0	0
Dogwood	5	0	0	0	0	0	0	0	0	0	0.5
Largeleaf Gallberry	100	100	100	100	100	100	100	100	100	100	100
Maple	0	0	5	0	0	0	0	0	0	0	0.5
Possumhaw Viburnum	0	50	100	30	100	0	10	20	15	0	32.5
Redbay	100	100	100	100	80	80	100	100	80	100	94
Sassafras	0	0	0	0	0	0	0	0	0	0	0
Spring Huckleberry	10	0	0	5	0	0	0	0	0	10	2.5
Sweetleaf	40	10	0	5	50	100	20	75	100	100	50
*Water Oak	40	50	0	-	-	-	-	-	-	-	30
Wax Myrtle	0	0	5	0	100	100	5	10	0	0	22
Yaupon	100	75	100	80	100	100	100	100	100	100	95.5

* Only three plants checked

TABLE III

Results of Browse Survey Conducted in South 40 Deer Corral

On February 7, 1964

		Percent Utilized On Each Plant Checked									
Species	1	2	3	4	5	6	7	8	9	10	Average Percent
Azalea	0	0	0	0	0	0	0	0	0	0	0
Blackgum	0	0	0	0	0	0	0	0	0	0	0
Dogwood	0	0	0	0	0	0	0	0	0	0	0
Largeleaf Gallberry	100	100	100	100	80	100	100	100	70	100	95
Maple	0	0	0	0	0	0	0	0	0	0	0
Possumhaw Viburnum	0	0	0	10	0	0	0	0	0	0	1
Redbay	0	9	1	8	35	10	10	0	0	12	8.5
Sassafras	0	0	0	0	0	0	0	0	0	0	0
Spring Huckleberry	0	0	55	75	0	0	0	0	0	0	13
Sweetleaf	95	12	48	41	12	0	8	25	9	0	25
*Water Oak	17	-	-	-	-	-	-	-	-	-	-
Whitebay	0	0	4	16	40	16	24	9	15	24	14.8
Yaupon	0	0	50	5	5	0	0	1	28	10	9.9

* Only one plant checked

TABLE IV

Results of Browse Survey Conducted In South 40 Deer Corral

On March 2, 1964

		Percent Utilized On Each Plant Checked									
Species	1	2	3	4	5	6	7	8	9	10	Average Perce
Azalea	0	0	0	0	0	0	0	0	0	0	0
Blackgum	0	0	0	0	0	0	0	0	0	0	0
Dogwood	0	0	0	0	50	0	0	5	5	0	6
Largeleaf Gallberry	100	100	100	100	100	100	100	100	100	100	100
Maple	0	0	0	0	0	0	0	0	0	0	0
Possumhaw Viburnum	0	0	0	0	0	0	0	0	0	0	0
Redbay	100	90	90	100	100	100	100	90	80	100	95
Sassafras	0	10	0	0	0	0	0	0	0	0	1
Spring Huckleberry	0	0	5	0	0	0	5	5	5	0	2
Sweetleaf	0	50	60	0	0	0	20	10	0	0	14
*Water Oak	60	10	100	0	-	-	-	-	-	-	40.2
Wax Myrtle	10	60	0	20	15	20	0	0	0	0	12.5
Whitebay	50	25	100	0	0	100	80	90	40	15	50
Yaupon	40	75	50	50	80	50	25	30	60	80	54

* Only four plants checked

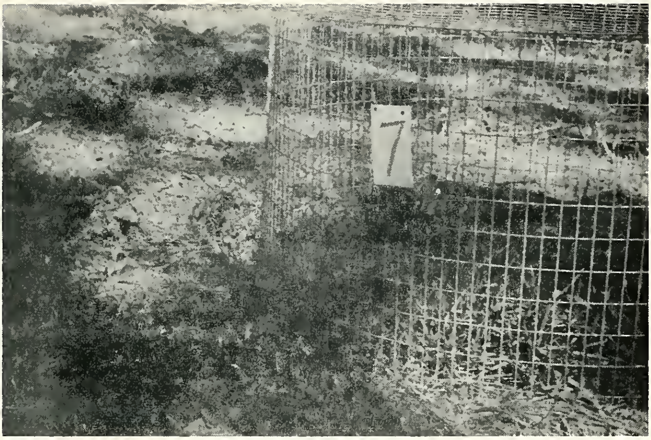


Fig. 1. Comparison of browsed and unbrowsed wheat at approximately 90 days after planting. Photo takened on January 17, 1964.

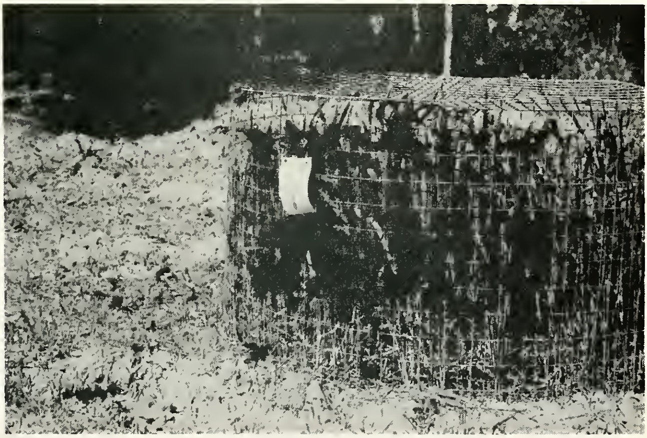


Fig. 2. The difference in the protected and unprotected wheat in and around protective exclosure on March 16, 1964.

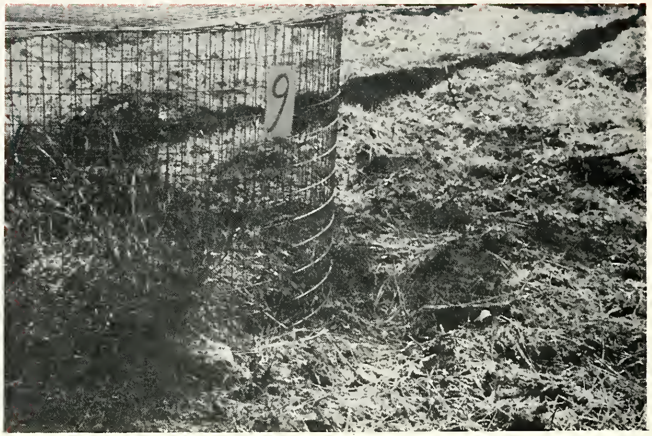


Fig. 3. Wheat protected from the deer in contrast to that unprotected on January 17, 1964.

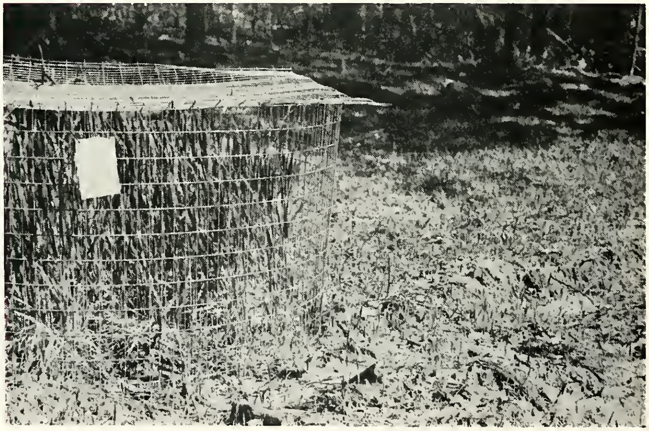


Fig. 4. The same protected wheat as in figure 3 on 16 March 1964.

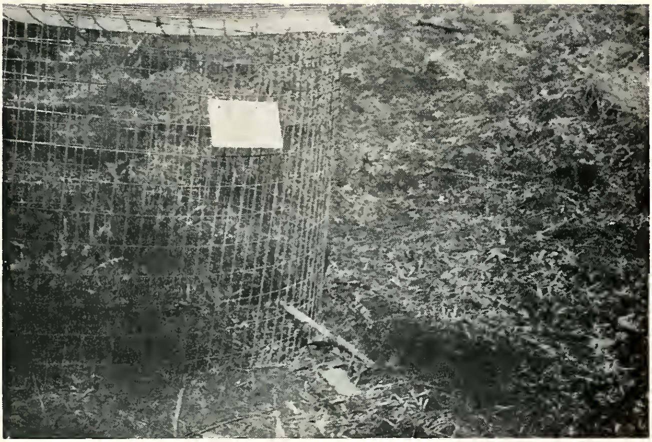


Fig. 5. Another protecting exclosure and its wheat on 17 January 1964. Note the difference in the wheat in the exclosure compared to that outside.

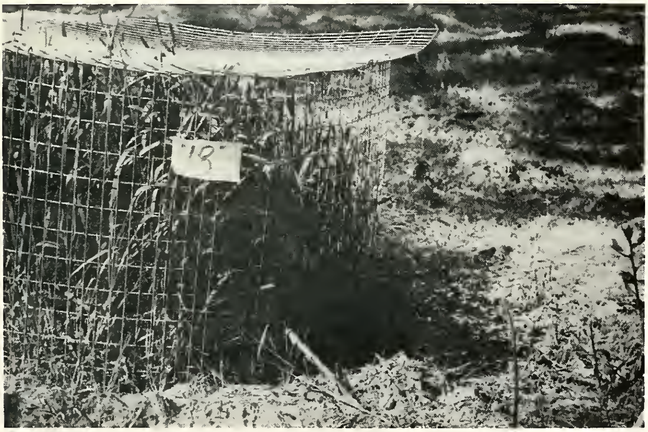


Fig. 6. The same protected wheat as in figure 5 on 16 March 1964.

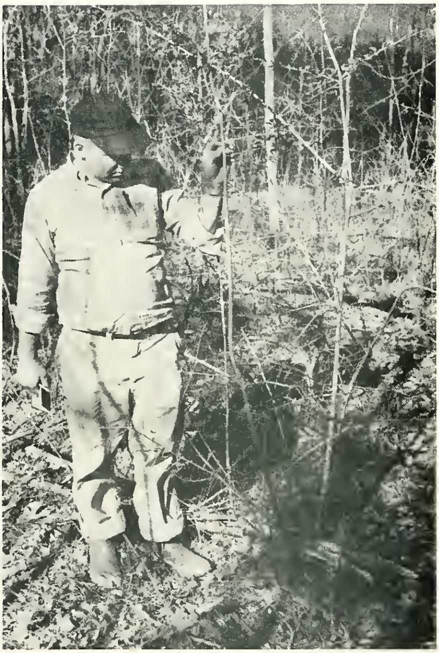


Fig. 7. Yaupon, a preferred browse plant, heavily browsed by the deer in the North 40.

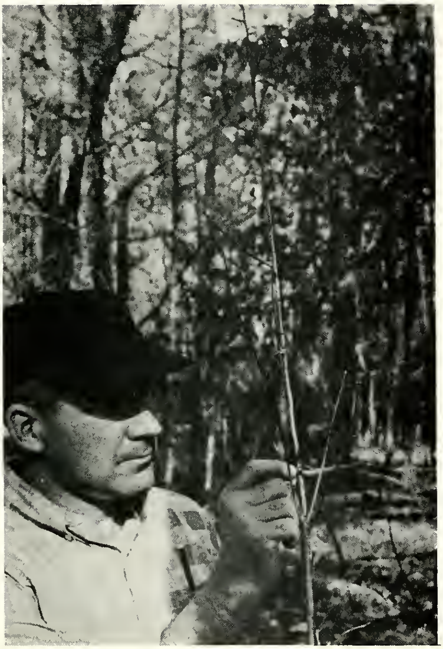


Fig. 8. Largeleaf gallberry, a preferred browse plant, that had been ridden down by deer in the North 40 to get to its top.

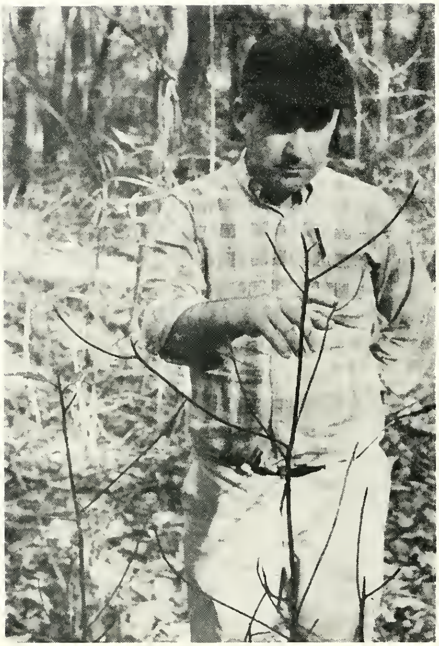


Fig. 9. The deer in both enclosures browsed heavily on redbay, a preferred specie. Notice the size of the stems that had been eaten.

Fig. 10. Whitebay, a preferred browse specie, that was browsed heavily by deer in the North 40.

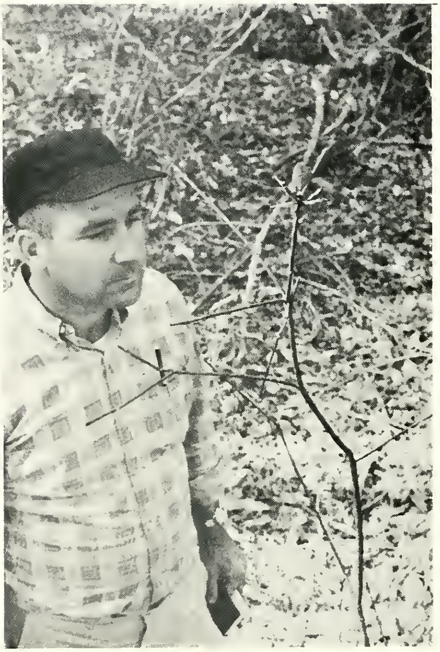


Fig. 11. Sweetleaf, a specie of intermediate browse preference, browsed heavily by deer in the North 40.

Fig. 12. Waxmyrtle, an undesirable browse specie, was utilized by deer in both enclosures.

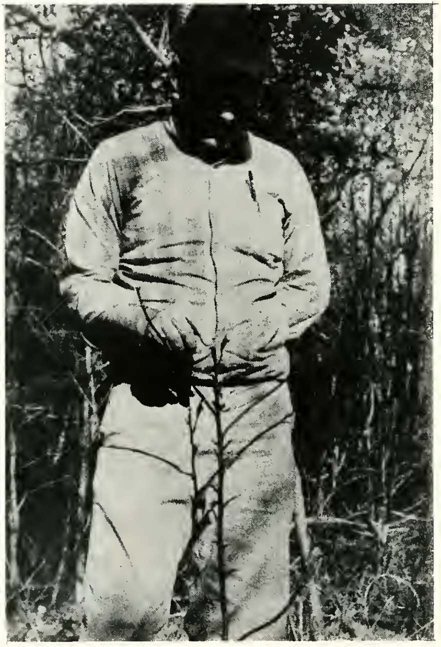


Fig. 13. Magnolia (Magnolia grandiflora), an undesirable browse plant, that was utilized heavily by the deer in the North 40. Notice the size of the main stem that had been bitten off.

LITERATURE CITED

Webb, Lloyd G., 1963, "Utilization of Domestic Forage Crops By Deer and Wild Turkeys With Notes On Insects Inhabiting The Crops", South Carolina Wildlife Resources Department and Clemson College.

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

WORK PLAN II

WATERFOWL STUDY

State of: Louisiana

Project No.: W-29R-11 Name: Statewide Wildlife Investigations

Job No. 2 Title: Aerial Census of Louisiana Waterfowl

Period Covered: July 1, 1963 through June 30, 1964

Abstract: Louisiana, as usual, supported a very high percentage of the Mississippi Flyway duck population during their stay on the wintering grounds. The peak population was during the mid-winter inventory when approximately 6,870,000 ducks were observed in the state. The highest population recorded at another time was the first week of December when approximately 4,950,000 ducks were counted in the state.

Recommendations:

1. Conduct aerial surveys on a monthly basis rather than bi-monthly. This would give time for a more complete survey of the state.
2. Estimate use of refuges by waterfowl before, during and after season.
3. Continue offshore surveys of scaup to get a better estimate of the population.
4. Change from line transect method through known areas of duck concentrations to total count method of these areas.
5. Use the Cessna 210 for all surveys.

Objectives:

1. Provide periodic estimates of the state waterfowl population for public information.
2. Provide estimates of waterfowl day use on state refuges and public shooting grounds.
3. Continue the exploration of offshore areas to improve present estimates of the scaup populations wintering in Louisiana waters.
4. Explore methods to verify aerial estimate counts of waterfowl.

Techniques Used: Used line transects as described in the LOUISIANA WATERFOWL POPULATION STUDY FINAL REPORT, JULY 1949 - JUNE 1961. All marsh flights were made by the Cessna 210 landplane.

Findings: It will be noted that there is a large drop in waterfowl numbers from the mid-winter inventory. Let me add that a comparison between the mid-winter and monthly inventories is misleading because of the difference in which the two inventories are conducted. So the two should not be compared. The mid-winter covers the state entirely, whereas the monthly inventories only cover selected areas and therefore miss a lot of waterfowl that are counted on the mid-winter. It could be concluded from this that we are undercounting our waterfowl in the monthly inventories. If a large concerted effort by both Federal and State agencies could be initiated during the next mid-winter inventory an even greater coverage of the waterfowl habitat could be accomplished and thus a better count.

PERIODIC WATERFOWL INVENTORY: MISSISSIPPI FLYWAY STATE Louisiana

TYPE OF COVERAGE: Aerial Surveys and Total Count

DATE: September 20 and 23, 1963

REPORTED BY: Clark M. Hoffpauir

Population Estimates by Areas

Names of Areas

SPECIES	SOUTHWEST LOUISIANA	SOUTHEAST LOUISIANA	CENTRAL LOUISIANA	NORTHEAST LOUISIANA	NORTHWEST LOUISIANA	STATE TOTALS
Mallard	100	50				150
Black Duck						
Gadwall	100	0				100
Baldpate	1,000	150				1,150
Green W. Teal	1,000	1,000				2,000
Blue W. Teal	279,950	220,000	3,000	2,460	1,870	507,280
Shoveler	2,950	1,200	100	46	220	4,516
Pintail	10,900	3,500	75			14,475
Wood Duck	*	*	*			*
Mottled Duck	28,000	16,700				44,700
Redhead						
Canvasback						
Scaup						
Ringneck						
Ruddy						
Merganser						
TOTAL	324,000	242,600	3,175	2,506	2,090	574,371
Canada Geese						
Whitefront G.						
Blue & Snow Geese						
TOTAL						
Coots	750	1,200			100	2,050

* Not Censused

PERIODIC WATERFOWL INVENTORY: MISSISSIPPI FLYWAY STATE Louisiana

TYPE OF COVERAGE: Aerial Transects and Total Count DATE: October 7, 8, & 9, 1963

REPORTED BY: Clark Hoffpauir

Population Estimates by Zones, Areas or Other Units

Names of Areas

SPECIES	SOUTHWEST LOUISIANA	SOUTHEAST LOUISIANA	CENTRAL LOUISIANA	NORTHEAST LOUISIANA	NORTHWEST LOUISIANA	STATE TOTALS
Mallard	250	80				330
Black Duck						
Gadwall	6,200	3,600	500			10,300
Baldpate	84,000	5,400	700	60		90,160
Green W. Teal	44,000	1,250	2,100	180		47,530
Blue W. Teal	255,000	206,000	6,500	1,000	300	468,800
Shoveler	61,000	9,400	1,100	10	40	71,550
Pintail	148,000	8,500	13,000	200	200	169,900
Wood Duck						
Mottled Duck	24,000	12,500				36,500
Redhead						
Canvasback						
Scaup						
Ringneck						
Ruddy						
Merganser						
TOTAL	622,450	246,730	23,900	1,450	540	895,070
Canada Geese						
Whitefront G.	20,000					20,000
Blue & Snow Geese						
TOTAL	20,000					20,000
Coots	1,300	2,800				4,100

See narrative report on back

Since the first inventory of September 20th and 23rd, large numbers of ducks have moved into the Louisiana marshes. The most substantial increases were noted in baldpate, green-winged teal and pintail. It can be said that Hurricane Cindy, that brushed the Louisiana coast on September 16 and 17 was a blessing to the Louisiana waterfowl habitat. The storm dumped between five and seventeen inches of rain in the marshes. Prior to this the marshes were extremely dry. Had this not occurred the great number of waterfowl that are arriving here now would have had very restricted wet habitat. The only areas holding water were the tidal marshes and some refuges.

A slight drop was noted in the blue-winged teal and mottled duck population since the first transect. This was probably due to dispersal movements after flooding of the marsh lands. Some high tides in connection with small tropical disturbances after Cindy caused this flooding of the coastal marsh lands.

The previous dry conditions in the marsh lands had one beneficial effect. That is this condition allowed large quantities of millet (Echnichloa sp.) to germinate. At this time the Louisiana marshes are considered in prime condition in regards to water and food for waterfowl. If however, several inches of rain are not percipated by the end of October, the waterfowl will remain near the coast on refuges and in the flooded rice fields due to a drop of water levels in the marsh.

PERIODIC WATERFOWL INVENTORY: MISSISSIPPI FLYWAY STATE Louisiana

TYPE OF COVERAGE: Aerial Transect and Total Count

DATE: October 21-23, 1963

REPORTED BY: Clark M. Hoffpauer

Population Estimates by Zones, Areas or Other Units

Names of Areas

SPECIES	SOUTHWEST LOUISIANA	SOUTHEAST LOUISIANA	CENTRAL LOUISIANA	NORTHEAST LOUISIANA	NORTHWEST LOUISIANA	STATE TOTALS
Mallard	108	60	75	120	50	413
Black Duck						
Gadwall	33,000	15,500	1,200			49,700
Baldpate	152,000	251,000	3,500	300		406,800
Green W. Teal	87,000	28,000	7,300	750	200	123,250
Blue W. Teal	233,000	285,000	12,000	2,100	1,100	533,200
Shoveler	105,000	51,000	3,000	400	300	159,700
Pintail	121,000	79,000	21,000	1,250	1,600	223,850
Wood Duck	*	*	*	*	*	*
Mottled Duck	27,000	14,500				41,500
Redhead	NONE SEEN BUT PRIMARY AREAS NOT CENSUSED					
Canvasback	NONE SEEN BUT PRIMARY AREAS NOT CENSUSED					
Scaup		2,900				2,900
Ringneck	161					161
Ruddy		15				15
Merganser						
TOTAL	758,269	726,975	48,075	4,920	3,250	1,541,489
Canada Geese	*	*	*	*	*	*
Whitefront G.	*	*	*	*	*	
Blue & Snow Geese	*	*	*	*	*	
TOTAL						
Coots	5,620	12,000				

* Not censused

ERIODIC WATERFOWL INVENTORY: MISSISSIPPI FLYWAY STATE Louisiana

PE OF COVERAGE: Aerial Transect and Total Count

DATE: November 4-7, 1963

REPORTED BY: Clark M. Hoffpauer

Population Estimates by Zones, Areas or Other Units
Names of Areas

SPECIES	SOUTHWEST LOUISIANA	SOUTHEAST LOUISIANA	CENTRAL LOUISIANA	NORTHEAST LOUISIANA	NORTHWEST LOUISIANA	STATE TOTALS
allard	86,000	51,000	10,000	6,400	*	153,400
lack Duck	1,000	1,000	2,000	850	*	4,850
adwall	482,000	180,000	10,000	2,000	*	674,000
aldpate	216,000	208,000	2,500	2,500	*	429,000
reen W. Teal	290,000	160,000	39,000	16,000	*	505,000
lue W. Teal	360,000	195,000	2,000	2,500	*	559,500
hoveler	170,000	58,000	5,000	700	*	233,700
intail	604,000	155,000	35,000	2,300	*	796,300
ood Duck	*	*	*	*	*	
ottled Duck	22,000	21,000			*	43,000
edhead	NONE SEEN BUT PRIMARY AREAS NOT CENSUSED					
anvasback	NONE SEEN BUT PRIMARY AREAS NOT CENSUSED					
Scaup	35,000	24,000			*	59,000
Ringneck	18,000	4,000	2,500	1,000	*	25,500
Ruddy		500			*	500
MERGANSER		2,800			*	2,800
TOTAL	2,284,000	1,060,300	108,000	34,250	*	3,486,550
Canada Geese	2,100	100	Censused not completed			2,200
Whitefront G.	38,750	Census not completed				38,750
Blue & Snow Geese	257,000	Census not completed				257,000
TOTAL	297,850	Census not completed				297,950
Coots	123,000	308,000	3,000			

* Not censused

One of the main concerns during October was the lack of rainfall. Approximately 0 to 1.0 inches of rain occurred along the Louisiana coastal marshes. Had this kept up until mid-November, the great numbers of waterfowl in the state would have been rather restricted in habitat. During this dry period the only areas affording ideal habitat were the wildlife refuges and improved marshland areas. But due to high tides and north winds which blew water into the marsh from large lakes, the waterfowl during October were never really in a bind, so to say, for habitat. This dry period was broken in the first week in November when 3.8 inches of rain was dropped on south Louisiana.

As both of these inventory figures are going out together, the great increase in waterfowl from the 21st of October until the 4th of November will be noted in no small way. The great jump in figures could be accounted for in the fact that three successive cold waves hit the northern part of the continent and maybe helped these birds to move down from these previously warm places.

The greatest increase will be noted in gadwall. Most of these are appearing in Cameron and Vermilion Parishes in Southwest Louisiana and on Delta Wildlife Refuge and Pass-a-Loutre Refuge in Southeast Louisiana. This large increase of birds is quite evident in most species. There is not too much dispersal of the birds yet, but rather a tendency to body-up. This is true generally of new arrival birds.

The census of geese in Louisiana is not complete at this time. The Canada geese are about the same level of population as last year and an increase of white-fronted geese is noted in Southwest Louisiana. Blue and snow geese appear low in the table but again this figure is not complete. A large number of birds not counted are located at the Mississippi River Delta.

All in all the waterfowl picture in Louisiana looks prime at this time. There has been an increased interest in waterfowl hunting in Louisiana as the Commission has already issued 20 duck club permits.

PERIODIC WATERFOWL INVENTORY: MISSISSIPPI FLYWAY STATE Louisiana

TYPE OF COVERAGE: Aerial Transects and Total Count DATE: Nov. 19, 20 & 21, 1963

REPORTED BY: Clark M. Hoffpauir

Population Estimated by Zones, Areas or Other Units

Names of Areas

SPECIES	SOUTHWEST LOUISIANA	SOUTHEAST LOUISIANA	CENTRAL LOUISIANA	NORTHEAST LOUISIANA	NORTHWEST LOUISIANA	STATE TOTALS
Mallard	277,000	39,000	26,000	10,000	6,000	358,000
Black Duck	1,000	1,000	3,500	2,500	1,000	9,000
Gadwall	510,000	418,000	9,500	3,000	2,000	942,500
Baldpate	208,000	124,000	2,000	1,500	1,200	336,700
Green W. Teal	530,000	68,000	40,000	18,000	6,000	662,000
Blue W. Teal	222,000	73,000	3,000	2,000	2,000	302,000
Shoveler	142,000	39,000	5,000	800	1,500	188,300
Pintail	545,000	42,000	31,000	2,100	3,000	623,100
Wood Duck	*	*	*	*	*	*
Mottled Duck	18,900	30,000	0	0	0	48,900
Redhead	0	0	0	0	0	0
Canvasback	0	0	0	0	0	0
Scaup	39,000	870,000	0	0	0	909,000
Ringneck	14,000	1,500	3,000	1,800	2,000	22,300
Ruddy	500	100	0	100	0	700
Merganser	650	6,200	0	0	0	6,850
TOTAL	2,508,050	1,711,800	123,000	41,800	24,700	4,409,350
Canada Geese	2,100	100	Census not Completed			2,200
Whitefront G.	38,750		Census not Completed			38,750
Blue & Snow Geese	257,000		Census not Completed			257,000
TOTAL	297,850		Census not Completed			297,950
Coots	167,000	690,000	3,500	300	1,000	861,800

* Not censused

Bad weather in the order of low ceilings and fog have plagued the scaup census in Louisiana. Approximately one-half of the scaup areas were censused during this inventory, thus this figure does not represent the total number of birds in Louisiana. There will probably be a better opportunity for hunters to utilize these bonus birds this year as about 100,000 are seen in inland lake and marsh areas. It is hoped that these birds will remain available during the hunting season. Because the areas were not all covered in the scaup survey there were no canvasback and redhead seen. The particular areas not censused as yet are the Chandeleur Islands, Breton Island and the Timbalier Islands. It is hoped by the first week of December, a census can be made of these areas.

There has been an increase of slightly less than one million ducks in Louisiana since November 7th. Other than the scaup, the largest increase was noted in gadwall. These birds seem to be present in any group of birds seen. Mallards have also increased greatly since the last survey, but this was expected as their arrival in the state is usually around November 15th.

The largest decrease was noted in pintail and blue-winged teal. This is a normal happening as these birds move on down along the Texas coast and across to Mexico. As noted in the census figures these birds are still well represented in the state.

The largest concentration of ducks are found in southwest Louisiana on Rockefeller Refuge, Lacassine Refuge, Sabine Refuge and the Pan Am marsh north of White Lake. In southeast Louisiana most ducks are found on Pass-a-Loutre Public Shooting Area and Delta Refuge. In central Louisiana most ducks are found on Catahoula Lake and Miller's Lake. In notheast Louisiana most of the ducks are found on the old Ox-bow Lakes along the Mississippi River. Lake Bisteneau, Cross Lake, Black Lake and Caddo Lake hold most of the waterfowl in northwest Louisiana.

The goose census is not complete mainly because of the same problems we have had on our state-run census - bad weather. The goose census is carried out by the Bureau of Sport Fisheries and Wildlife. Louisiana also cooperates on this survey where it can.

The water conditions in the marshes is up and down the scale. As of now the water levels in the marshes are good, but a good two or three inch rain over the state would improve the situation. The problem is now that such a large amount of oil field canal dredging is taking place without regard to waterfowl habitat, that much of the marshland is drained as fast as it is flooded by rain or runoff water. This is becoming an increasingly large problem in Louisiana.

PERIODIC WATERFOWL INVENTORY: MISSISSIPPI FLYWAY STATE Louisiana

TYPE OF COVERAGE: Total Count & Transect Count DATE: December 2-3-4, 1963

REPORTED BY: Clark M. Hoffpauer

Population Estimates by Zones, Areas or Other Units
Names of Areas

SPECIES	SOUTHWEST LOUISIANA	SOUTHEAST LOUISIANA	CENTRAL LOUISIANA	NORTHEAST LOUISIANA	NORTHWEST LOUISIANA	STATE TOTALS
Mallard	408,000	202,000	35,000	15,000	9,000	669,000
Black Duck	1,000	1,000	4,500	2,000	1,000	9,500
Gadwall	420,000	480,000	6,000	2,500	2,300	910,800
Baldpate	147,000	119,000	2,500	1,200	600	270,300
Green W. Teal	460,000	409,000	15,000	11,000	4,800	899,800
Blue W. Teal	108,000	43,000	2,500	2,000	1,500	157,000
Shoveler	130,000	206,000	4,000	500	1,000	341,500
Pintail	480,000	312,000	21,000	2,500	4,200	819,700
Wood Duck	*	*	*	*	*	*
Mottled Duck	22,000	26,000	0	0	0	48,000
Redhead	0	0	0	0	0	0
Canvasback	0	400	0	0	0	400
Scaup	61,000	712,000	200	100	0	773,300
Ringneck	18,000	1,000	4,000	2,000	1,800	26,800
Ruddy	1,200	150	0	0	0	1,350
Merganser	4,700	18,000	0	0	0	22,700
TOTAL	2,260,900	2,529,550	94,700	38,800	26,200	4,950,150
Canada Geese	2,100	100	Census not completed			2,200
Whitefront G.	38,750	Census not completed				38,750
Blue & Snow Geese	257,000	Census not completed				257,000
TOTAL	297,850	Census not completed				297,950
Coots	143,000	700,000	12,000	1,500	1,000	857,500

* Not censused

The most significant increase is noted in mallard numbers. These birds seem to be everywhere. Totals all over the state have risen. Some species such as blue-winged teal and scaup have fallen. The blue-wings have probably moved, but the lowering of the scaup figure is not alarming as the total offshore areas were not censused. This is also the reason for the redhead and canvasback not showing up in the count.

Water conditions in the state are now about normal, but the ducks still are bodied-up. Because of this some real prime marsh areas are not being used. This may also have a lowering effect on the kill, as only a small portion of the hunters can get at the large groups of birds. This is particularly true in the southwest part of the state.

The reason the goose figures are remaining the same is that the Fish and Wildlife Service runs this inventory and will not have final figures until the mid-winter inventory. These figures represent only preliminary surveys which were designed to count Canada geese and learn the location of other geese.

Special Mallard, Mottled Duck and Redhead Aerial Survey in Louisiana

Date: December 18-19-20.-24,1963

Type of Coverage: Aerial transect and total count

Reported by: Clark M. Hoffpauer

Species	S.W. La.	S.E. La.	Cent. La.	N.E. La.	N.W. La.	State Total
Mallard	275,000	43,000	38,000	16,000	75,000	477,000
Mottled Duck	36,000	24,000	0	0	0	60,000
Redhead	300	20,000	0	0	0	20,300

This survey was run with the sole purpose of counting mallards, mottled ducks and redheads. Some of the areas were done by transect counts and some by total counting certain areas.

The mallard population was about normal for most of the state except Northwest Louisiana where a large rise in mallard numbers was noted. One reason for this is that heavy freezes had occurred and driven these birds out of the swamps and sloughs where an aerial inventory is not effective. Most of the birds were found in the Mississippi River and any large open water that was not frozen.

The increase in mottled duck numbers may have been due to an influx of northern blacks during the hard freeze. There was no way to check this, but it may show up in the wing collections or in the hunter bag checks.

The 20,000 redheads were found in the Chandeleur Island off the Southeast Coast of Louisiana. It may also be noted that no canvasbacks were seen around the Islands.

ERIODIC WATERFOWL INVENTORY: MISSISSIPPI FLYWAY STATE Louisiana

PE OF COVERAGE: Total Count Aerial and Ground Transects DATE: January 6-13, 1964

REPORTED BY: Clark M. Hoffpauir

Population Estimates by Zones, Areas or Other Units

Names of Areas

SPECIES	SOUTHWEST LOUISIANA	SOUTHEAST LOUISIANA	CENTRAL LOUISIANA	NORTHEAST LOUISIANA	NORTHWEST LOUISIANA	STATE TOTALS
llard	520,000	185,000	100,000	17,000	17,000	839,000
ack Duck	2,000	1,600	5,000	3,000	1,000	12,600
dwall	440,000	570,000	40,000	5,000	5,000	1,060,000
ldpate	236,000	280,000	9,000	3,000	2,000	530,000
een W. Teal	550,000	620,000	80,000	15,000	5,000	1,270,000
ue W. Teal	164,000	226,000	20,000	5,000	5,000	420,000
oveler	183,000	144,000	4,000	1,000	3,000	335,000
ntail	700,000	610,000	48,000	2,000	2,000	1,362,000
od Duck			Estimated Statewide			121,000 (est.)
ttled Duck	36,000	42,000	2,000			80,000
dhead	1,000	18,950				19,950
nvasback	1,000	9,500	2,000			12,500
aup	80,000	600,000	1,000	100	1,000	682,100
ngneck	51,000	34,000	7,500	2,000	2,500	97,000
ddy	2,500	1,500	500	250	250	5,000
rganser	10,000	15,000			200	25,200
TAL	2,976,500	3,357,550	319,000	53,350	43,950	6,871,350
nada Geese	5,800					5,800
itefront G.	30,340					30,340
ue & ow Geese	370,800	56,000				426,800
TAL	406,940	56,000				462,940
ots	270,000	420,000	56,000	20,000	10,000	776,000

Louisiana presently contains the greatest population of ducks observed since the periodic waterfowl inventories were first started by the Louisiana Wild Life & Fisheries Commission in 1951. Mallards, pintails, gadwall, and green-winged teal have greatly increased. Only scaup are down substantially from last year; however, many of these may have been missed in the offshore waters of the Gulf of Mexico.

The overall increase in numbers of ducks over last year is 2,576,000. Large numbers of ducks were found in many areas that are normally frequented by only a few birds. This held particularly true in the northwest corner of Louisiana's rice field areas of southwest Louisiana. Ducks were found in quantities almost everywhere in the state that could be considered waterfowl habitat. This particularly held true in the coastal marshes, the Atchafalaya Basin, Catahoula Lake, and the rice field sections.

ERIODIC WATERFOWL INVENTORY: MISSISSIPPI FLYWAY STATE Louisiana

YPE OF COVERAGE: Transect & Total Count DATE: February 5, 6 & 7, 1964

REPORTED BY: Clark M. Hoffpauer

Population Estimates by Zones, Areas or Other Units

Names of Areas

SPECIES	SOUTHWEST LOUISIANA	SOUTHEAST LOUISIANA	CENTRAL LOUISIANA	NORTHEAST LOUISIANA	NORTHWEST LOUISIANA	STATE TOTALS
allard	223,000	81,000	85,000	14,000	6,000	409,000
lack Duck	8,000	5,000	5,000	2,500	1,000	21,500
adwall	234,000	209,000	1,500	4,000	2,700	451,200
aldpate	49,000	62,000	12,000	1,000	500	124,500
reen W. Teal	270,000	308,000	7,000	12,000	5,000	602,000
lue W. Teal	29,000	50,000	2,500	3,800	1,500	86,800
hoveler	145,000	58,000	1,000	1,000	1,000	206,000
intail	233,000	61,000	100,000	2,000	1,000	397,000
ood Duck						
ottled Duck	21,000	52,000	0	0	0	73,000
edhead	6,000	18,000	0	0	0	24,000
anvasback	0	7,500	3,500	0	0	11,000
caup	76,000	700,000	5,000	1,000	1,000	783,000
ingneck	8,000	9,000	2,500	2,000	1,500	23,000
uddy	450	700	1,000	0	0	2,150
erganser	1,400	9,700	100	0	0	11,200
OTAL	1,303,850	1,630,900	226,100	43,300	21,200	3,225,350
anada Geese						
hitefront G.						
lue & now Geese						
OTAL						
oots						

SPECIAL SCAUP SURVEY, FEBRUARY, 1964

There has been some concern as to the lack of scaup in Louisiana this winter. The results of the last scaup inventory ran on February 5-6 and 14-15 is listed below. Although scaup were down in numbers from last year (820,000 at the last count), they have jumped from 1.6 per cent of the bag in 1962-63 season to 13.4 per cent in the 1963-64 bag in South Louisiana. The reason for this is that the birds did not inhabit the coastal marshes in 1962-63. This season a complete reversal did occur, thus accounting for the big change in the hunter bag composition in 1963-64.

This is the results of a special scaup inventory conducted by Nelson Summerell, Robert Chabreck and Clark Hoffpauir. The breakdown of the areas censused follows:

Location	Number of Scaup
Southeast Louisiana Marshes	536,000
Lake Borne	2,300
Lake Salvadore	9,500
Lake Pontchartrain	120,000
Flat Lake	1,000
Southeast Morgan City Area	1,200
Mississippi River Venice South	5,000
Vermilion Bay and Cote Blanche	25,000
Southwest Louisiana Marshes	60,000
Calcasieu Lake	3,400
Sabine Lake	6,000
White Lake	100
Grand Lake	50
Gulf of Mexico Total	10,000
Total Scaup in Louisiana	779,550 or 780,000

PERIODIC WATERFOWL INVENTORY: MISSISSIPPI FLYWAY STATE Louisiana

TYPE OF COVERAGE: Aerial Transect & Total Count DATE: March 5, 6 & 7, 1964

REPORTED BY: Clark M. Hoffpauer

Population Estimates by Zones, Areas or Other Units

Names of Areas

SPECIES	SOUTHWEST LOUISIANA	SOUTHEAST LOUISIANA	CENTRAL LOUISIANA	NORTHEAST LOUISIANA	NORTHWEST LOUISIANA	STATE TOTALS
Mallard	90,000	24,000	11,000	3,500	2,000	130,500
Black Duck	1,000	1,000	2,800	1,000	500	6,300
Gadwall	163,000	133,000	2,000	3,500	1,000	302,500
Baldpate	40,000	36,000	4,500	1,000	500	82,000
Green W. Teal	144,000	97,000	6,000	8,000	3,500	258,500
Blue W. Teal	155,000	119,000	14,000	4,000	2,500	294,500
Shoveler	198,000	52,000	1,500	500	500	252,500
Pintail	27,000	3,500	4,000	500	500	35,500
Wood Duck						
Mottled Duck	30,000	22,000	0	0	0	52,000
Redhead	0	900	0	0	0	900
Canvasback	0	400	2,000	0	0	2,400
Scaup	32,000	182,000	1,000	1,000	0	216,000
Ringneck	1,800	2,000	1,800	1,200	800	7,600
Ruddy	100	400	500	0	0	1,000
Merganser	2,000	5,500	100	0	0	7,600
TOTAL	883,900	678,700	51,200	24,200	11,800	1649,800
Canada Geese						
Whitefront G.						
Blue & Snow Geese						
TOTAL						
Coots						

It will be noted that there is a large drop in waterfowl numbers from the mid-winter inventory. Let me add that a comparison between the mid-winter and monthly inventories is misleading because of the difference in which the two inventories are conducted. So the two should not be compared. The mid-winter covers the state entirely, whereas the monthly inventories only cover selected areas and therefore miss a lot of waterfowl that are counted on the mid-winter. It could be concluded from this that we are undercounting our waterfowl in the monthly inventories. If a large converted effort by both Federal and State agencies could be initialed during the next mid-winter inventory an even greater coverage of the waterfowl habitat could be accomplished and thus a better count.

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

WORK PLAN II

WATERFOWL STUDY

State of: Louisiana

Project No.: W-29R-11 Name: Statewide Wildlife Investigations

Job No. 4 Title: Wood Duck Trapping and Banding

Period Covered: July 1, 1963 through June 30, 1964

Abstract: Three men were assigned to this study, but only 1 man banded a total of 88 ducks between July 1, 1963 to June 30, 1964.

Recommendations: This project should be continued only if help in other districts is assured. An effort should be made to trap wood ducks in the South Alexandria area and the Mermentau River area with the help of Enforcement Personnel. This has not proved satisfactory in the past, but with proper instructions and supervision a method could be perfected.

Objectives: To continue participation in the Cooperative Wood Duck Banding project in the Mississippi Flyway. A quota of 750 wood ducks was established for Louisiana last year.

Techniques Used: Float type traps were used and prebaited. Banding was carried on by Jim Taylor in Minden and Charles Baur in Monroe. All banding was carried out on flooded swamp areas. All birds were banded under Louisiana Permit 6669.

Findings: In the Minden area Jim Taylor trapped a total of 88 wood ducks, 45 which were retraps and 12 immature.

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

WORK PLAN II

WATERFOWL STUDY

State of: Louisiana

Project No. W-29R-11 Name: Statewide Wildlife Investigations

Job No. 6 Title: Cooperative Canadian Banding Operation

Period Covered: July 26, 1963 through September 3, 1963

Abstract: Louisiana participated in the Canadian Cooperative Project by providing one man for a crew that bait trapped and banded ducks in southern Alberta. The crew worked in the vicinity of Brooks on Ducks Unlimited projects and banded 2,160 ducks between August 3 and August 31, 1963.

Recommendations: It is recommended that we continue to develop techniques to catch and band moulting redhead and canvasback. The overall Cooperative Canadian Banding Operation should be continued.

Objectives: The overall objectives are: (1) To band diving ducks, nesting hens, and free flying waterfowl prior to the hunting season; and (2) to utilize this information in conjunction with that gathered during the preceding eight years to provide more efficien management of the waterfowl resource. The objective of the crew that the representative of the Louisiana Wild Life and Fisheries Commission was assigned was to develop techniques to drive trap moulting redhead and canvasback.

Techniques Used: Most waterfowl banding in Canada had previously been done by drive trapping crews. These crews require as many as 8 men and a great deal of equipment. During 1963 about 12 bait trapping and banding crews were assigned to various areas in Canada in an effort to determine the effectiveness of bait trapping. After arriving at the trap station the crew made surveys of the surrounding lakes in order to locate duck concentrations. The lakes selected were checked closely and trap sites located. The trap sites were heavily baited with barley for two days then the traps set up. Cloverleaf box traps 8' x 5' x 3' high were used during this operation.

indings: Robert H. Chabreck represented Louisiana on the Cooperative Canadian waterfowl banding project in 1963. His report follows: "I left Louisiana on July 26 enroute to Regina, Saskatchewan, which was the rendezvous point for all banding crews. We picked up the necessary equipment at Regina then left for Brooks, Alberta, on August 1. We immediately began a search for duck concentrations and by August 4 had set up the traps and caught the first ducks.

All banding in the Brooks area was done on Ducks Unlimited lakes. The Oakland Lakes were trapped first and after August 15 we moved the trapping operation to the Louisiana Lakes.

During the four weeks of trapping the two-man crew to which I was assigned banded 2,160 ducks. The species composition of the catch was:

Blue-winged teal	1,030
Mallard	574
Pintail	393
Green-winged teal	48
Redhead	52

Gadwall	32
Baldpate	28
Canvasback	1
Black Duck	1
Shoveler	1
Total	2,160

We terminated the assignment on August 31 and placed all equipment in storage in Brooks. I returned to Louisiana on September 3."

The analysis of the band recovery data will be completed and reported by the U. S. Fish and Wildlife Service.

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

WORK PLAN II

WATERFOWL STUDY

State of: Louisiana

Project No. W-29R-11 Name: Statewide Wildlife Investigations

Job No. 7 Title: Cooperation with Mississippi Flyway Council Technical Section

Period Covered: July 1, 1963 through June 30, 1964

Waterfowl Study Leader cooperated with Mississippi Flyway Council Technical Section on all assignments which are the Regulations Committee and the Habitat Utilization Committee.

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

WORK PLAN II

WATERFOWL STUDY

State of: Louisiana

Project No. W-29R-11 Name: Statewide Wildlife Investigations

Job No. Supplemental Report (Work carried in previous Segment as Job 9) Title: Evaluation of Physical Changes in Marsh Ponds on the Wisner and Biloxi Development Projects

Period Covered: July 1, 1963 through June 30, 1964

Introduction: The work herein reported followed the procedural outline of Job No. 9 of W-29R-10, except the evaluation was aimed only at development on the Biloxi Tract.

Due to a sudden administrative need for current information on physical changes that were related to marsh development work, the Work Plan of the previous year was used as a guideline in gathering these data.

Abstract: In all ponds sampled behind the weir and earthen dams, the aquatic vegetation was found in much greater quantities than in the control ponds. The Wisner Tract was not evaluated this year.

Recommendations: This study should be continued.

Objectives:

1. Record the number, type, and location of structures and earthen dams on the study areas and determine the acreage influenced by the improvements.
2. Investigate the physical and vegetative changes in the marsh ponds resulting from the improvements erected on the are

Techniques Used: The location and date of construction for each structure and earthen dam erected on the Wisner and Biloxi areas were obtained from Robert Beter, Supervisor of District VIII.

All weir locations and study ponds are shown on the maps attached at the end of this report. More detailed maps of most study ponds and structures are attached to Project W-29R-7, Work Plan II, Job No. 10.

The techniques used to investigate physical and vegetative changes in the study ponds were those described in the Completion Reports for Job No. 10, Work Plan II, of Project W-29R-7 and 8.

Findings: On May 12, 1964 the evaluation of physical changes in marsh ponds on the Biloxi Development Project was resumed as part of Project -29R-10, Job 9. A total of 31 ponds having 2,250 stations were sampled according to previous methods described in the 29-R Annual Reports. The only change was in the final measurement of the amount of vegetation. Previously this had been done to obtain only the total volume of vegetation in a pond. The method employed in May, 1964 obtained the total volume of vegetation in a pond and also what portion of the volume of the pond each aquatic species occupied. This was broken down to obtain number of milliliters of each species per sample (Table 1). Table 1 is composed of only May samples of 1960-62-64. This shows more graphically the successional changes the ponds are undergoing.

Weir Ponds

The weir ponds in Table 1 show that they contained 441 per cent more vegetation per sample than the control ponds or 10.65 milliliters per sample for the weir ponds as compared to 2.43 milliliters per sample for the control.

The most valuable increase noted was that there were 7.7 milliliters per sample of wigeongrass which is one of the most valuable duck food plants on the Gulf Coast. It is utilized by widgeon or baldpate, gadwall blue-winged teal, mottled duck, pintail, coots, diving ducks and some mallards. There is also some evidence in the Holly Beach area that nutria are also utilizing it. Wigeongrass also serves as a large breeding area for aquatic beetles and small zooplankton which in turn are a food for ducks and fish.

In May, 1962 there were only 2.6 milliliters of wigeongrass per sample in the weir ponds. In May of 1964 it increased to 7.7 milliliters per sample or an increase of 296 per cent. The control also increased slightly from May, 1962 to May, 1964. The increase amounted only 2.19 milliliters per sample.

To sum up the aquatic vegetation behind the weirs; wigeongrass was approximately 7 times more abundant behind the weirs as compared to the controls and algae was approximately 2 times more plentiful behind the weirs as compared to the controls. One of the major goals of waterfowl management is to have a supply of food in the habitat to hold waterfowl and keep them from moving. This goal has been accomplished on the Biloxi tract.

Earthen Dams

Earthern dams were sampled in the same method as the weir and control ponds. A total of seven ponds were sampled behind the earthern dams. Table 2 shows that there was approximately 5 times or 470 per cent more aquatics behind the dams as compared to the controls. Wigeongrass (Ruppia maritima) has increased from a trace amount in May, 1960 to 9.5 milliliters per sample in May, 1964 or about 900 per cent for this particular species.

It is realized that an earthern dam obstructs the ingress and egress in waterways, but the beneficial effect of these dams far out weigh this inconvenience. Some question has also risen as to the effect an earthen dam would have upon the rearing of shrimp. Naturally these dams would stop a good many post laval shrimp from entering these ponds. However, a high tide would flood these ponds with post laval shrimp. These shrimp would in turn be trapped behind the dam and would mature there, which in turn would afford a great deal of food for waterfowl during the winter until the first hard freeze. Whereas post laval shrimp behind a weir mature and start leaving the last of July through September.

Turbidity

Turbidity has never been a real problem in the Biloxi marsh tract. Previously some samples have run as high as 50 ppm insoluable material in the water. In May, 1964 all 31 water samples, which were taken in each pond, were found to be less than 25 ppm according to the readings on a Jackson turbidometer. Aquatics such as found on the Biloxi tract are capable of sustaining themselves in water of a 150 ppm insoluable material.

Salinities

Salinities in ponds behind the weirs in May, 1964 averaged 4,340 ppm; earthen dam ponds averaged 4,031 ppm; and control ponds averaged 5,301 ppm. This is not a very wide range of salinities between regulated ponds and open controls. This has been the case in most areas where water level management has been put into practice. The difference in the amount of vegetation between different type ponds is not due to salinities. The average of these salinities is approximately 18 per cent of the Gulf salinity along the coast.

Summary

It has been concluded that salinities and turbidity are not the factors which influence the difference in density of aquatic vegetation in the Biloxi marsh. One factor which has not been discussed is tidal action. Tidal action in uncontrolled areas scours the bottom and is continually disturbing it twice a day. It is approximately the same as dragging a harrow over a cane field twice a day. When a wind driven tide either floods and or dries out an area, there is a great deal of current in this exchange during a 24-hour period. This in turn disturbs the bottom and thus prohibits the growth of aquatics.

Frequency of occurrence of the vegetation was approximately 20 times higher behind the weirs as compared to the controls (Table 4). Frequency of occurrence behind the earthen dams was also consistently higher than the control areas in all the ponds.

From all the above and included data, it is assumed that the weir water control structures and the earthen dams are in no way detrimental to the welfare of the Biloxi Marsh Game Management Area.

TABLE 1 - DENSITY (ML PER SAMPLE) OF AQUATIC VEGETATION BEHIND WEIRS AND CONTROL AREAS, BILOXI GAME MANAGEMENT AREA

Species	May, 1960	May, 1962	May, 1964
		Weirs	
Cladophera sp.	Trace	Volume not calculated by species	2.9
Ruppia maritima	Trace		7.7
Najas sp.	Trace		-
Potamogeton sp.	Trace		-
Zannichellia sp.	Trace		.05
Ceratophyllum sp.	Trace		-
Total Volume	Trace	2.6 ml per sample	10.65
		Controls	
Cladophora sp.	Trace	Volume not calculated by species	1.43
Ruppia maritima	Trace		1.0
Najas sp.	Trace		-
Potamogeton sp.	Trace		-
Zannichellia sp.	Trace		-
Ceratophyllum sp.	Trace		-
Total Volume	Trace	.24 ml per sample	2.43

TABLE 2 - DENSITY (ML PER SAMPLE) OF AQUATIC VEGETATION BEHIND EARTHEN DAMS AND CONTROL AREAS, BILOXI GAME MANAGEMENT AREA

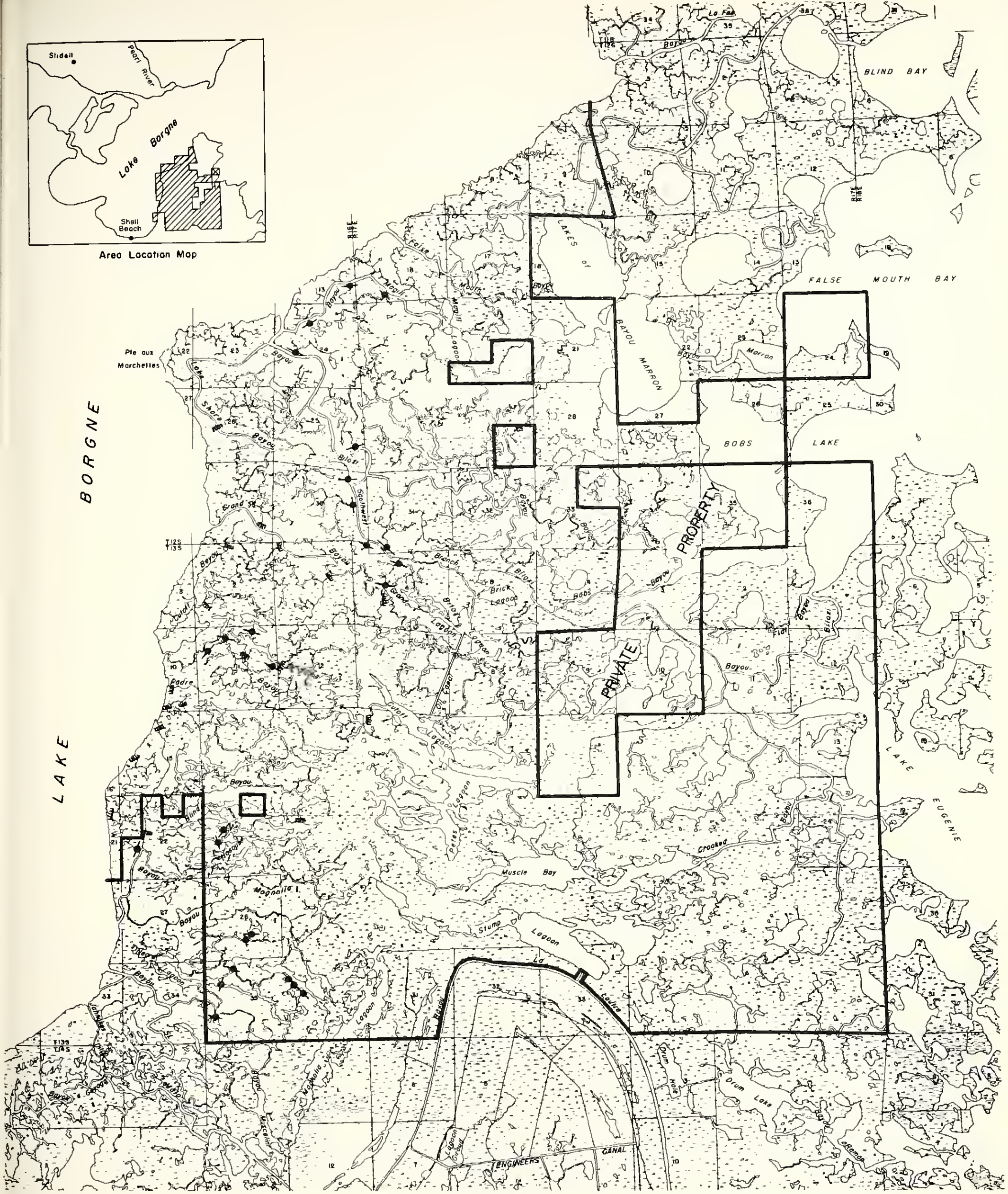
Species	May, 1960	May, 1962	May, 1964
	Earthen Dams		
Cladophora sp.	Trace	Volume not calculated by species	1.8
Ruppia maritima	Trace		9.5
Najas sp.	Trace		-
Potamogeton sp.	Trace		-
Zannichellia sp.	Trace		-
Ceratophyllum sp.	Trace		-
Ml per sample	Trace	2.8	11.3
	Controls		
Cladophora sp.	Trace	Volume not calculated by species	1.4
Ruppia maritima	Trace		1.0
Najas sp.	Trace		-
Potamogeton sp.	Trace		-
Zannichellia sp.	Trace		-
Ceratophyllum sp.	Trace		-
Ml per sample	Trace	.30	2.4

TABLE 3 - PER CENT FREQUENCY OF OCCURRENCE OF AQUATIC VEGETATION BEHIND WEIRS AND CONTROL AREA, BILOXI GAME MANAGEMENT AREA

Species	May, 1960	May, 1962	May, 1964
	Weirs		
Cladophora sp.	No weirs were built at this time	6.7	5.6
Ruppia maritima		6.2	19.1
Najas sp.		16.8	-
Potamogeton sp.		9.2	-
Zannichellia sp.		-	.3
Ceratophyllum sp.		11.9	-
	Controls		
Cladophora sp.	6.2	18.0	.06
Ruppia maritima	2.2	6.0	.06
Najas sp.	20.8	14.5	-
Potamogeton sp.	20.8	13.0	-
Zannichellia sp.	.2	-	-
Ceratophyllum sp.	52.4	23.9	-

TABLE 4 - PER CENT FREQUENCY OF OCCURRENCE OF AQUATIC VEGETATION BEHIND EARTHEN DAMS AND CONTROL AREAS, BILOXI GAME MANAGEMENT AREA

Species	May, 1960	May, 1962	May, 1964
		Earthen Dams	
Cladophora sp.	30.0	18.0	20.0
Ruppia maritima	7.6	6.0	24.0
Najas sp.	19.6	14.5	-
Potamogeton sp.	30.8	13.0	-
Zannichellia sp.	-	-	-
Ceratophyllum sp.	69.2	23.9	-
		Control Areas	
Cladophora sp.	6.9	7.0	.06
Ruppia maritima	2.5	7.8	.06
Najas sp.	46.0	24.0	-
Potamogeton sp.	23.6	13.1	-
Zannichellia sp.	.1	-	-
Ceratophyllum sp.	49.4	25.6	-



BILOXI
WILDLIFE MANAGEMENT AREA

Scale
0 1 2
Miles

N

LEGEND

- Boundary
- Earthen dam
- Marsh
- Wooden dam

Dwn. May, 1963

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

WORK PLAN II

WATERFOWL STUDY

State of: Louisiana

Project No. W-29R-11 Name: Statewide Wildlife Investigations

Job No. 12 Title: Mottled Duck Transplanting Study

Period Covered: July 1, 1963 through June 30, 1964

Abstract: A total of 65 mottled ducks were hatched at Rockefeller Refuge for transplanting. Twenty-seven of these were transported to Collinston, Louisiana and released on a farm pond.

Recommendations:

1. This study should be continued.
2. Move the hatching site to DeRidder and develop the broods from there.
3. Concentrate on only two places in the state in Louisiana until some trend of development can be observed. One area is Collinston and the other is the Reddell-Mamou area.
4. Release half the broods with brood hens and half without.

Objectives: This job is designed to evaluate the mottled duck as a transplant to permanent fresh water areas of up-state Louisiana.

Findings: Thus far no conclusions have been made from the release at Collinston, Louisiana.

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

WORK PLAN III

MOURNING DOVE STUDY

State of: Louisiana

Project No. W-29R-11 Name: Statewide Wildlife Investigations

Job No. 1 Title: Population and Productivity

Period Covered: July 1, 1963 - June 30, 1964

Abstract: During the period July 1, 1963 through June 30, 1964 two census methods, the call-count and random road count, were employed in an effort to determine trends in the statewide mourning dove population. The indexes obtained indicate a decrease in the 1964 statewide dove breeding population when compared to the previous year. The call-count survey indicates a 14.3% decrease in the number heard from the 1963 level. The average May-June random road count indicates a 17.0% decrease from the 1963 level at that time.

Recommendations: The census methods currently available have serious limitations; therefore, a continued comparison and evaluation of both the call-count and random road count are recommended in an effort to more effectively determine trends in the mourning dove population.

Objectives: This job was designed to provide an index to the mourning dove population. The size of the breeding population and a measure of production are needed to assist in the formulation of hunting regulations.

es Used: During the period from July 1,1963 and June 30, 1964, two census methods were employed in an effort to determine trends in the statewide mourning dove population. The call-count survey was conducted from May 20 through June 10, while the random road count data were collected during year-round daylight travel in accordance with a set of operational procedures.

: The call-count survey provides the only national population index presently available, but it has important limitations. It is an index to the breeding population only and does not serve as an indicator of production.

The random road count, probably more properly called the haphazard road count, has the advantage of censusing production as well as the breeding population. Inspection of the statewide data reveals an upward trend in the number of doves recorded per 100 miles of travel during July, August, September and October of 1963 when compared to the same period in 1962 (Table I). This increased early fall population corresponds to an increased breeding population during May and June 1963 as reflected by the call counts and random road count during this period. During the next four months, November, December, January and February, however, this upward trend was reversed. This reversal in trend may be due to a migrational shift from the state which differs from year to year or to the lack of sensitivity of the census technique.

A decrease in the number of doves seen during the random road count was evident in May and June, 1964 when compared to the same period in 1963 as revealed below.

Call-Count (May-June)
(Average No. per Route)

	1963	1964	Trend
No. Heard	16.1	13.8	14.3% decrease
No. Seen	5.8	6.6	13.8% increase

Random Road Count
(Doves / 100 Miles)

May-June	5.76	4.78	17.0% decrease

The data used in Table II is limited to the 16 call-count routes censused by biologists, while the random road count averaged approximately 20,000 miles per month. Indexes indicate a decrease in the statewide mourning dove breeding population in 1964 when compared to that of 1963. The call-count survey indicates a 14.3% decrease in the number of doves heard and 13.8% increase in the number seen from the 1963 level.

The number of doves heard is considered a more reliable indicator of dove population status than the number seen during the call-count survey and is, therefore, the index compared to determine breeding population status.

The average May-June 1964 random road count indicates a 17.0% decrease from the 1963 level at that time.

Prepared by: Larry Soileau
Dove Study Leader

TABLE I

DOVE RANDOM ROAD COUNT

District I

Month	Miles Traveled	Doves Recorded	No. Doves Per 100 Miles
July, 1963	4597	149	3.24
August	6538	360	5.51
September	4156	83	2.00
October	5057	123	2.43
November	5413	36	.66
December	3680	36	.98
January, 1964	3914	21	.54
February	2571	70	2.72
March	3856	27	.70
April	3103	87	2.80
May	3350	214	6.39
June	3135	76	2.41

District II

Month	Miles Traveled	Doves Recorded	No. Doves Per 100 Miles
July, 1963	3700	179	4.84
August	4953	433	8.74
September	6418	413	6.44
October	5098	255	5.00
November	3222	0	.00
December	1425	7	.49
January, 1964	4776	29	.61
February	4654	69	1.48
March	4592	120	2.61
April	6847	322	4.70
May	3100	148	4.77
June	2196	69	3.14

TABLE I (Cont'd)

DOVE RANDOM ROAD COUNT

District III

Month	Miles Traveled	Doves Recorded	No. Doves Per 100 Miles
July, 1963	4342	252	5.80
August	4185	316	7.55
September	4415	101	2.29
October	4939	71	1.44
November	2838	17	.60
December	1215	62	5.10
January, 1964	1632	76	4.66
February	1758	67	3.81
March	4110	166	4.04
April	4794	170	3.55
May	6648	367	5.52
June	4638	204	4.40

District IV

Month	Miles Traveled	Doves Recorded	No. Doves Per 100 Miles
July, 1963	249	52	20.88
August	928	163	17.56
September	1393	167	11.99
October	2737	26	.95
November	2675	51	1.91
December	1769	2	.11
January, 1964	2657	22	.83
February	1945	39	2.00
March	3287	90	2.74
April	4335	615	14.19
May	2990	238	7.96
June	837	65	7.76

TABLE I (Cont'd)

DOVE RANDOM ROAD COUNT

District V

Month	Miles Traveled	Doves Recorded	No. Doves Per 100 Miles
July, 1963	2991	469	15.68
August	3080	404	13.12
September	2625	194	7.39
October	2678	273	10.19
November	1499	48	3.20
December	1301	21	1.61
January, 1964	2844	134	4.71
February	1564	27	1.73
March	2060	58	2.82
April	2673	133	4.98
May	3154	234	7.42
June	3342	274	8.20

District VI

Month	Miles Traveled	Doves Recorded	No. Doves Per 100 Miles
July, 1963	1373	37	2.69
August	2551	65	2.55
September	1541	26	1.69
October	2227	51	2.29
November	764	1	.13
December	1049	6	.57
January, 1964	1858	29	1.56
February	1252	18	1.44
March	1811	51	2.82
April	3203	86	2.68
May	1656	43	2.60
June	2026	48	2.37

TABLE I (Cont'd)

DOVE RANDOM ROAD COUNT

District VII

Month	Miles Traveled	Doves Recorded	No. Doves Per 100 Miles
July, 1963	110	2	1.82
August	145	5	3.45
September	*		
October	274	0	.00
November	*		
December	*		
January, 1964	605	2	.33
February	562	8	1.42
March	2382	41	1.72
April	2367	29	1.22
May	453	5	1.10
June	553	5	.90

*No Data

District VIII

July, 1963	1793	5	.28
August	895	13	1.45
September	2195	8	.36
October	2105	29	1.38
November	1437	3	.21
December	478	0	.00
January, 1964	2850	5	.18
February	1375	0	.00
March	1754	3	.17
April	1331	3	.23
May	1943	15	.77
June	2035	5	.25

TABLE I (Cont'd)

DOVE RANDOM ROAD COUNT

Statewide

Month	Miles Traveled	Doves Recorded	No. Doves Per 100 Miles	1962-63 No. Doves Per 100 Miles
July, 1963	19155	1145	5.98	4.98
August	23275	1759	7.56	6.68
September	22743	992	4.36	2.67
October	25115	828	3.30	2.61
November	17848	156	.87	4.44
December	10917	134	1.23	4.26
January, 1964	21136	318	1.50	3.48
February	15681	298	1.90	2.64
March	23852	556	2.33	1.87
April	28653	1445	5.04	4.09
May	23294	1264	5.43	5.66
June	18762	746	3.98	5.87

TABLE II

CALL COUNT ROUTES

Comparison of 1963 and 1964 Routes

Route No.	Parish	No. of Doves Heard 1963	No. of Doves Heard 1964	No. of Doves Seen 1963	No. of Doves Seen 1964
1	Sabine-Natchitoches	11	5	5	4
2	Webster	10	9	12	12
3	Acadia	1	0	1	1
5	E. Baton Rouge-Iberville	6	0	3	8
7	E. Feliciana	11	7	1	0
8	Tangipahoa	18	10	2	4
9	Concordia	43	30	6	7
10	Caldwell-Ouachita	11	20	8	7
13	Vernon-Natchitoches	7	5	4	5
14	Natchitoches	19	16	1	0
24	Grant	26	29	19	29
25	Vernon	21	16	3	5
28	Bienville	17	10	7	6
29	Pointe Coupee	13	11	6	6
30	Union	6	12	6	6
31	Franklin	37	41	9	6
	TOTALS	257	221	93	106
	Average number per route	16.1	13.8	5.8	6.6

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

WORK PLAN III

MOURNING DOVE STUDY

State of: Louisiana

Project No. W-29R-11 Name: Statewide Wildlife Investigations

Job No. 2 Title: Dove Trapping and Banding

Period Covered: July 1, 1963 - June 30, 1964

Abstract: A total of 443 doves was banded in the state from July 1, 1963 through June 30, 1964. Of this total 210 were banded at Camp Claiborne, Alexandria; 176 at Selman Field, Monroe; and 50 at Rockefeller Refuge, Grand Chenier. Seven (7) nestling doves were banded throughout the state.

Recommendations: Permanent trapping and banding stations should be operated as part of the national pre and post-season banding program. The pre-season banding period is defined as that period from June through August and the post-season period is from January through March. The state's quota is 2,000 doves during each period.

Objectives: This job was designed to band a large number of mourning doves in an effort to better understand migrational patterns and mortality factors.

Techniques Used: Trapping was done with baited wire box traps which were operated at permanent stations throughout the trapping season. The stations were baited continuously and the traps set and run once each week.

Findings: The results of the trapping and banding program from July 1, 1963 through June 30, 1964 are included in Table III. A total of 436 doves was banded at three permanent stations, while 7 nestling doves were banded throughout the state.

Prepared by: Larry Soileau
Dove Study Leader

TABLE III

Mourning Dove - Trapping and Banding
July 1, 1963 - June 30, 1964

MONTH	NO. BANDED	ADULT	IMMATURE	UNKNOWN	TOTAL RETRAPS
Camp Claiborne, Alexandria					
July, 1963	128	31	97	0	113
August, 1963	18	7	11	0	31
April, 1964	18	16	2	0	6
June, 1964	46	42	4	0	26
TOTAL	210	96	114	0	176
Selman Field, Monroe					
July, 1963	58	8	50	0	16
August, 1963	26	5	21	0	4
April, 1964	38	38	0	0	25
June, 1964	54	34	20	0	10
TOTAL	176	85	91	0	55
Rockefeller Refuge, Grand Chenier					
August, 1963	40	16	18	6	0
May, 1964	2	2	0	0	0
June, 1964	8	6	0	2	0
TOTAL	50	24	18	8	0

STATEWIDE TOTALS

Total No. Banded	Adult	Immature	Unknown	Nestling	Total Retraps
443	205	223	8	7	231

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

WORK PLAN III

MOURNING DOVE STUDY

State of: Louisiana

Project No. W-29R-11 Name: Statewide Wildlife Investigations

Job No. 3 Title: Dove Kill Estimation

Period Covered: July 1, 1963 - June 30, 1964

Abstract: 1. An estimated total of 951,575 doves was killed in the state by persons residing in a household with a telephone. This kill was approximately evenly divided among the three segments of the hunting season in the state as a whole, but the kill by telephone district fluctuated widely with season segments. A large portion of the kill during the first segment occurred in the northern half of the state, while much of the kill during the second and third segments took place in the southern portion of the state.

2. A tabulation of 2908 hunting efforts with the resulting kill of 12,757 doves was sent to the Branch of Management and Enforcement, Fish and Wildlife Service, for analysis with data from throughout the Southeast.

Recommendations: 1. The telephone survey as a method of estimating dove harvest should be continued on a reduced scale. Kill estimates by telephone district within the state should be eliminated in favor of a statewide kill estimate for each segment of the hunting season.

2. The objectives of this portion of the job have been accomplished; therefore, it is recommended that it be discontinued.

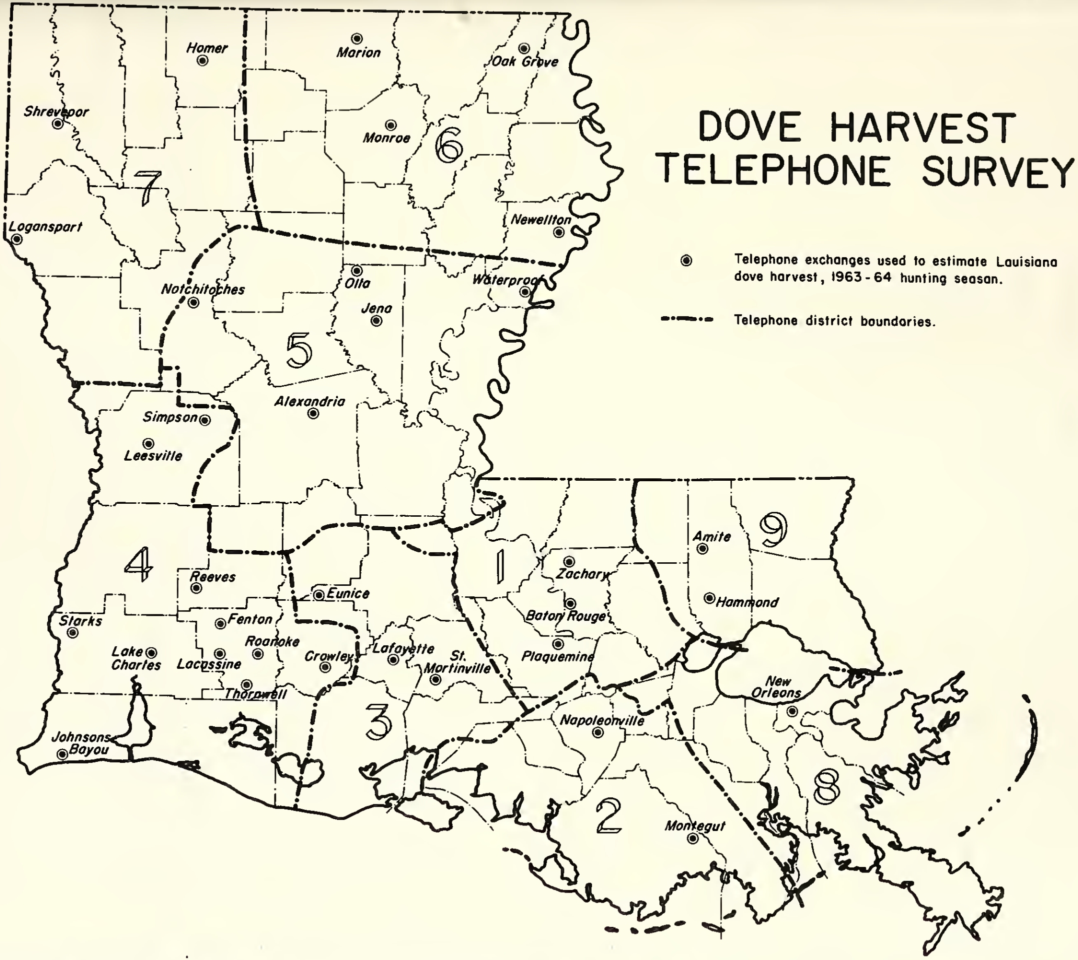
Objectives: 1. This portion of the job was designed to provide an estimated index of statewide dove harvest in an effort to evaluate the three segments of the split dove hunting season.

2. This portion of the job was a cooperative one with the Branch of Management and Enforcement, Fish and Wildlife Service, designed to gather kill data by types of hunting areas in order to determine the effects of changes in dove hunting regulations.

Techniques Used: 1. The model used for this survey was field tested during the 1960-61 hunting season in Acadia Parish, Louisiana and Wilson County, Tennessee and the results published. Armed with the information gained during this pilot study, a statewide kill estimate by season segment and geographical area was undertaken.

The first step of this operation was to secure a listing of all telephone exchanges and residential subscribers in the state. This information, which contained both Bell and independent exchanges, was obtained from the Southern Bell Telephone and Telegraph Company. It was found that Louisiana has approximately 672,000 residential telephone subscribers which were divided into nine telephone districts (Figure 1).

DOVE HARVEST TELEPHONE SURVEY



The sample for the survey was drawn by the Institute of Statistics, North Carolina State College. The first step of this process was to place the telephone exchanges in numerical order by district. This list of exchanges was then divided into 20 zones containing approximately 30,000 main residential stations. Each zone was divided into exactly 30 sampling units, each containing about 1,000 subscribers except New Orleans which contained approximately 2,000 subscribers each. The sample units selected for the survey were drawn at random without replacement, first one unit from the 30 in each zone, then a second unit.

Selected telephone directories were secured and divided into the proper number of sampling units. Non-residential telephones were deleted from the selected sample units in the directories.

Individual questionnaires were printed and the name and telephone number of each selected subscriber were placed on the appropriate questionnaire. The questions asked during the telephone interview related to the number of dove hunting trips and kill of the subscriber (person in whose name the telephone is listed) and others residing in the household.

In order to interview by telephone the large number of selected subscribers (approximately 45,000), telephone answering services were used in all cities where this service was available. In smaller rural exchanges individuals were employed to make calls from their homes. No long-distance telephone interviews were conducted during the survey. In an effort to standardize telephone interviews, all operators were provided with an individual questionnaire for each subscriber and given close supervision by a biologist.

One-third of the sample (approximately 15,000 subscribers) was called immediately following the end of the first segment of the dove season (September 2-16) and questioned concerning hunting activities during the season segment just ended. Those households with persons who had ever hunted doves were contacted again at the end of the second and third segments to report their hunting activities.

Another third of the sample was interviewed for the first time at the end of the second segment of the hunting season (October 12-November 3) concerning their dove hunting activities during the second segment of the season. During this interview they were also asked to recall the number of trips and kill they had made during the first season segment. Those households with dove hunters were called again following the third segment of the season to report their trips and kill. The final third of the sample of residential telephones was called immediately following the final segment of the season (December 7-January 7) and questioned about their dove hunting trips and kill during the preceding three season segments.

2. Biologists ran intensive checks of shoots during the first five days of each segment of the split seasons, gathering data after the hunts had been completed. Bag checks during the remainder of the season were run in conjunction with other work. Checks by personnel of the Enforcement Division were made

throughout the hunting season. The data gathered related field type to hunting success, the impact of baiting on kill and the average individual hunting success.

Findings: 1. Preliminary analysis of the data gathered during these telephone interviews has provided estimates of hunters, trips and kill for each hunting season segment by telephone district (Table IV). The table represents the hunting activities of persons living in the telephone district and not the hunting trips and kill which occurred in that district. It is probably, however, that most of the hunters living in a district hunted there also.

An estimated total of 951,575 doves was killed in the state by persons residing in a household with a telephone. This kill was approximately evenly divided among the three segments of the season. A large portion of the kill during the first segment occurred in the northern half of the state, while much of the kill during the second and third segments took place in the southern portion of the state.

Analysis of the data for pre-contact and memory bias is not yet complete.

2. A tabulation of 2908 hunting efforts with the resulting kill of 12,757 doves was sent to the Branch of Management and Enforcement, Fish and Wildlife Service for analysis with data from throughout the Southeast.

Prepared by: Larry Soileau
Dove Study Leader

TABLE IV

Estimates From Dove Hunters Residing in Households With a Telephone

1963-64 Hunting Season

Hunting Season Segment*	Estimated Hunters 1	Estimated Hunters 2	Estimated Hunters 3	Estimated Trips 1	Estimated Trips 2	Estimated Trips 3	Estimated Kill 1	Estimated Kill 2	Estimated Kill 3
DISTRICT									
1	8,634	4,388	3,380	15,956	8,073	12,023	39,478	30,678	61,188
2	1,419	1,161	802	5,723	2,459	2,904	9,446	6,435	4,266
3	5,778	4,221	4,335	13,976	11,866	15,820	31,003	45,527	60,401
4	7,524	6,518	5,120	16,862	18,791	17,889	41,190	75,093	87,155
5	6,550	3,336	3,039	14,049	6,365	10,307	42,641	20,204	28,592
6	9,952	2,368	572	30,373	4,769	1,588	84,604	18,586	10,540
7	8,091	2,694	1,642	15,865	5,821	4,519	53,327	10,255	9,370
8	3,770	2,127	2,641	7,270	5,962	6,398	16,873	26,528	25,384
9	3,178	3,195	2,382	6,353	10,663	6,697	18,964	61,800	32,047
STATEWIDE	54,896	30,008	23,913	126,427	74,769	78,145	337,526	295,106	318,943

*
Season Segments:
1 September 2-16
2 October 12-November 3
3 December 7-January 7

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

WORK PLAN III

MOURNING DOVE STUDY

State of: Louisiana

Project No. W-29R-11 Name: Statewide Wildlife Investigations

Job No. 4 Title: Dove Banding Analysis

Period Covered: July 1, 1963 - June 30, 1964

No work was accomplished on this job.

Prepared by: /s/ Larry Soileau
Dove Study Leader

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

WORK PLAN IV

QUAIL INVESTIGATIONS

State of: Louisiana

Project No. W-29R-11 Name: Statewide Wildlife Investigations

Job No. 4 Title: Technical Quail Report

Period Covered: July 1, 1963 - June 30, 1964

No work done toward completing this job.

Prepared by: Robert E. Murry
Quail Study Leader

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

RABBIT INVESTIGATIONS

WORK PLAN V

State of: Louisiana

Project No. W-29R-11 Name: Statewide Wildlife Investigations

Job No. 1 Title: Population Trends by Random Road Counts

Period Covered: July 1, 1963 - June 30, 1964

Abstract: The annual index figure which is based on the number of rabbits observed per 100 miles of random daylight travel was 0.55 for the period covered in this report. This figure was an overall statewide average obtained from 246,314 miles of travel in the eight geographical districts. During the four preceding study years the average was 0.63, 0.66, 0.69, and 0.70 respectively.

Recommendations: This job is designed primarily to provide simple indices to the rabbit population. Although it has serious limitations the job should be continued in its present form. A backlog of information gathered by this method is available for comparison. Also, comparisons can be made between this and other phases of the rabbit project. It is a job that is performed by the biologists while conducting routine duties; hence, no man days are necessary for the fulfillment of this job.

Objectives: A better understanding of seasonal and annual fluctuations in rabbit numbers is desirable for management planning. This job is designed to determine population or activity trends of rabbits throughout the state.

Techniques Used: This is a year-round job that is performed while conducting routine duties in the various districts. Data are collected and analyzed on a district basis. The work is assigned to all biologists and other designated personnel of the Pittman-Robertson Section of the Fish and Game Division. This includes district supervisors, district biologists, project leaders, study leaders, and biological aides. Method used to obtain the data is as follows: When travelling to perform routine duties the driver of the vehicle records the number of dead and alive rabbits observed. The speedometer reading is recorded at the beginning and completion of each trip. This information is kept only during daylight hours and by day, month, and year. Random road count data are mailed to the study leader at the end of each month.

Findings: Tables I through IV show results of the random road counts by district for the period July, 1963 through June, 1964. Table V presents the statewide random road count on a monthly and annual basis.

District I is located in northwest Louisiana. It is comprised of the following parishes: Caddo, Bossier, Webster, Claiborne, DeSoto, Red River, and Bienville. Table I shows a total of 49,078 miles of random daylight travel logged during the twelve month period. The number of rabbits recorded per 100 miles of travel was 0.40, the previous year figure was 0.54. In 1961-62 it was 0.49, and 0.45 in 1960-61, but in 1959-60 the figure was 0.14.

The parishes of Union, Morehouse, West Carroll, East Carroll, Richland, Ouachita, Lincoln, and Jackson comprise District II which is in northeast Louisiana. In this district 50,981 miles of random travel were recorded during the year. The number of rabbits recorded for each 100 miles of travel was 0.85. For the previous year the figure was 0.91. In 1961-62 it was 1.22 and in 1960-61 the figure was 1.19.

District III is made up of six parishes in central and west-central Louisiana. They are Winn, Grant, Rapides, Natchitoches, Sabine, and Vernon. For this district the total number of random miles logged was 45,564 and the average number of rabbits recorded for each 100 miles of travel was 0.61. During the previous year the figure was 0.62. Two years prior to this it was 0.71.

District IV is comprised of Franklin, Caldwell, LaSalle, Catahoula, Madison, Tensas, and Concordia. It is located in east-central Louisiana. A total of 21,963 random miles was recorded during the period covered in this report. The average number of rabbits tallied per 100 miles of travel was 0.36. Over the previous twelve month period a figure of 0.32 was recorded, and in 1961-62 it was 0.42.

The following parishes in southwest Louisiana make up District V: Beauregard, Allen, Evangeline, Jeff Davis, Acadia, Calcasieu, Cameron, and Vermilion. The period covered in this report showed 30,088 miles logged. In this district the average number of rabbits recorded per

100 miles was 0.73. This figure is some higher than the previous one which was 0.63. For the year prior to that the figure was 0.81.

Seven parishes in south-central Louisiana are in District VI. It is comprised of Avoyelles, St. Landry, Pointe Coupee, St. Martin, Lafayette, West Baton Rouge and Iberville. A total of 20,951 miles of random travel was recorded during the twelve month period. For each 100 miles of travel the average number of rabbits recorded was 0.52. During the previous study period the figure was 0.66. In 1961-62 it was 0.88.

District VII comprises nine parishes in southeast Louisiana. They are East Feliciana, West Feliciana, St. Helena, Tangipahoa, Washington, St. Tammany, Livingston, East Baton Rouge, and Ascension. Randomly traveled miles recorded in this district during the twelve month period amounted to 7,238. The average number of rabbits recorded per 100 miles of travel was 0.57. In 1962-63 the figure was 0.51. For the two study years previous to this the figure was 0.27 and 0.20 respectively.

District VIII comprises the remaining parishes of which most are located along the coast in southeast Louisiana. During the twelve month period 20,451 random miles were logged. The average number of rabbits recorded per 100 miles of travel was 0.04.

In conclusion, the rabbit random road counts were conducted in each of the eight districts during the period covered in this report, July 1, 1963 to June 30, 1964. The data were collected from a total of 246,314 randomly traveled miled during the study period. For the eight districts the overall average number of dead and alive rabbits recorded for each 100 miles of travel was 0.55. See Table V. Over the previous four years of study it was 0.63, 0.66, 0.69 and 0.70, respectively. Thus, figures in this report indicate a slight drop from those of the four preceding years.

Prepared by: /s/ Jack O. Collins

TABLE I

ANNUAL RABBIT RANDOM ROAD COUNTS BY DISTRICTS

DISTRICT I

Month	No. Miles Traveled	Rabbits Recorded Dead	Rabbits Recorded Alive	Rabbits Recorded Total	No. Rabbits Recorded Per 100 Miles of Travel
July, 1963	4597	10	28	38	0.83
August	6241	6	17	23	0.37
September	4156	3	3	6	0.14
October	5057	6	19	25	0.49
November	5413	2	0	2	0.04
December	3680	1	0	1	0.03
January, 1964	3914	10	0	10	0.26
February	2571	12	0	12	0.47
March	3856	19	1	20	0.52
April	3103	2	3	5	0.16
May	3355	11	25	36	1.07
June	3135	3	16	19	0.61
TOTALS	49078	85	112	197	0.40

DISTRICT II

Month	No. Miles Traveled	Rabbits Recorded Dead	Rabbits Recorded Alive	Rabbits Recorded Total	No. Rabbits Recorded Per 100 Miles of Travel
July, 1963	3700	12	19	31	0.84
August	4953	23	24	47	0.95
September	6418	10	5	15	0.23
October	5098	14	6	20	0.39
November	3222	6	0	6	0.19
December	1425	1	4	5	0.35
January, 1964	4776	54	0	54	1.16
February	4654	54	0	54	1.16
March	4592	58	7	65	1.42
April	6847	45	30	75	1.10
May	3100	13	22	35	1.13
June	2196	10	7	17	0.77
TOTALS	50981	300	131	431	0.85

TABLE II

ANNUAL RABBIT RANDOM ROAD COUNTS BY DISTRICTS

DISTRICT III

Month	No. Miles Traveled	Rabbits Recorded			No. Rabbits Recorded Per 100 Miles of Travel
		Dead	Alive	Total	
July, 1963	4391	13	6	19	0.43
August	4185	9	2	11	0.26
September	4415	15	1	16	0.36
October	4939	29	2	31	0.63
November	2838	18	0	18	0.63
December	1215	6	0	6	0.49
January, 1964	1632	18	1	19	1.16
February	1758	19	0	19	1.08
March	4110	40	1	41	1.00
April	4795	31	2	33	0.69
May	6648	34	8	42	0.63
June	4638	23	1	24	0.52
TOTALS	45564	255	24	279	0.61

DISTRICT IV

July, 1963	249	2	0	2	0.80
August	928	5	1	6	0.65
September	1383	1	0	1	0.07
October	2710	4	1	5	0.18
November	2675	9	0	9	0.34
December	1769	2	0	2	0.11
January, 1964	2376	2	0	2	0.08
February	1945	4	0	4	0.21
March	3447	19	0	19	0.55
April	2831	18	2	20	0.71
May	1194	5	1	6	0.50
June	456	2	0	2	0.44
TOTALS	21963	73	5	78	0.36

TABLE III

ANNUAL RABBIT RANDOM ROAD COUNTS BY DISTRICTS

DISTRICT V

Month	No. Miles Traveled	Rabbits Recorded			No. Rabbits Recorded Per 100 Miles of Travel
		Dead	Alive	Total	
July, 1963	2991	11	13	24	0.80
August	3377	16	6	22	0.65
September	2625	7	0	7	0.27
October	2658	13	0	13	0.49
November	1499	7	0	7	0.47
December	1301	15	0	15	1.15
January, 1964	2844	35	1	36	1.27
February	1564	8	0	8	0.51
March	2060	4	1	5	0.24
April	2673	7	11	18	0.67
May	3154	11	9	20	0.63
June	3342	4	43	47	1.41
TOTALS	30088	138	84	222	0.73

DISTRICT VI

July, 1963	1379	2	2	4	0.29
August	2551	7	1	8	0.31
September	1541	1	1	2	0.13
October	2227	7	1	8	0.36
November	915	7	1	8	0.87
December	1049	9	1	10	0.95
January, 1964	1858	13	0	13	0.70
February	730	10	1	11	1.51
March	1811	14	1	15	0.83
April	3208	15	1	16	0.50
May	1656	7	4	11	0.66
June	2026	2	1	3	0.15
TOTALS	20951	94	15	109	0.52

TABLE IV

ANNUAL RABBIT RANDOM ROAD COUNTS BY DISTRICTS

DISTRICT VII

Month	No. Miles Traveled	Rabbits Recorded Dead	Rabbits Recorded Alive	Rabbits Recorded Total	No. Rabbits Recorded Per 100 Miles of Travel
July, 1963	110	0	0	0	0
August	145	0	0	0	0
September	-	-	-	-	-
October	274	0	1	1	0.36
November	-	-	-	-	-
December	-	-	-	-	-
January, 1964	605	14	0	14	2.31
February	349	1	0	1	0.29
March	2382	7	1	8	0.34
April	2367	13	1	14	0.59
May	453	1	2	3	0.66
June	553	0	0	0	0
TOTALS	7238	36	5	41	0.57

DISTRICT VIII

Month	No. Miles Traveled	Rabbits Recorded Dead	Rabbits Recorded Alive	Rabbits Recorded Total	No. Rabbits Recorded Per 100 Miles of Travel
July, 1963	1793	0	0	0	0
August	1065	0	0	0	0
September	2312	0	0	0	0
October	2278	8	0	8	0.35
November	1588	0	0	0	0
December	478	0	0	0	0
January, 1964	2283	0	0	0	0
February	1498	0	0	0	0
March	1754	0	0	0	0
April	1331	0	0	0	0
May	2036	0	0	0	0
June	2035	0	0	0	0
TOTALS	20451	8	0	8	0.04

TABLE V

ANNUAL RABBIT RANDOM ROAD COUNTS BY DISTRICTS

STATEWIDE

	No. Miles	Rabbits Recorded			No. Rabbits Recorded Per
Month	Traveled	Dead	Alive	Total	100 Miles of Travel
July, 1963	19210	50	68	118	0.61
August	23445	66	51	117	0.50
September	22850	37	10	47	0.21
October	25241	81	30	111	0.44
November	18150	49	1	50	0.28
December	10917	34	5	39	0.36
January, 1964	20288	146	9	155	0.76
February	15069	108	1	109	0.72
March	24012	161	12	173	0.72
April	27155	131	50	181	0.67
May	21596	82	71	153	0.71
June	18381	44	68	112	0.61
TOTALS	246314	989	376	1365	

Overall Average -- --- --- 0.55

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

RABBIT INVESTIGATIONS

WORK PLAN V

State of: Louisiana

Project No. W-29R-11 Name: Statewide Wildlife Investigations

Job No. 2 Title: Hunter Bag Checks

Period Covered: July 1, 1963 - June 30, 1964

Abstract: Completed records were received from six cooperators at the close of the 1963-64 rabbit hunting season. These records showed a total of 328 hunters participated in 116 hunts; 534 rabbits were bagged and hunts were reported from thirteen parishes. According to the returns the number of rabbits bagged per hunter per hunt was considerably higher in the 1963-64 season than in 1962-63 or 1961-62.

Recommendations: This job was designed to furnish evidence of harvest trends only. It was not intended to measure the statewide kill of rabbits. The job was planned for a minimum of three years. Job 2, Work Plan V, Project W-29R-10 should be terminated at this time because the number of cooperators has declined to a point where the quantity of information received is negligible and, therefore, of little or no value, and since the three year period of study has been completed.

Objectives: To determine trends in rabbit hunting success in various areas of the state.

Techniques Used: This job consisted mainly of compiling information obtained from rabbit hunters. Prior to the 1961 rabbit season, members of most beagle clubs in the state were contacted by letter. The objectives of the job were explained to them and they were asked to cooperate for a minimum of three years. Each person was asked to keep a record of his hunts. Information asked for was date of hunt, parish in which hunt was made, number of hunters in party, and number of rabbits bagged. Those agreeing to cooperate were mailed forms for recording the data and stamped envelopes for returning the information at the close of the hunting season. Those who agreed to cooperate were mailed forms preceding each of the three study years, 1961-62, 1962-63, and 1963-64.

Findings: Approximately 120 individuals were mailed forms immediately preceding the opening date of the 1963-64 rabbit hunting season. Returns were received from six cooperators after the closing date which was February 15, 1964.

According to the hunter bag checks received at the close of the 1963-64 season, 328 hunters participated in 116 hunts. A total of 534 rabbits was bagged. Hunts were reported from thirteen different parishes.

In comparison, hunter bag check returns for 1962-63 revealed a total of 1,282 hunters participated in 337 hunts. A total of 1,512 rabbits was bagged. Hunts were reported from seventeen parishes. Whereas, the kill sheets returned after the 1961-62 hunting season showed 2,607 hunters made 788 hunts.

A total of 2,929 rabbits was bagged, and hunts were conducted in 33 different parishes.

Of the 400 individuals contacted by letter prior to the 1961 rabbit hunting season, 118 agreed to cooperate. At the close of the 1961-62 season kill sheets were received from forty cooperators. At the end of the second season there were only sixteen cooperators. The number of respondents declined to six after the third season terminated on February 15, 1964.

Although there was a considerable difference in sample size, the following comparison illustrates the differences between the three rabbit seasons.

Averages	1961	1962	1963
No. hunters per hunt	3.3	3.8	2.8
No. rabbits bagged per hunt	3.7	4.5	4.6
No. rabbits bagged per hunter per hunt	1.1	1.2	1.6

In conclusion, judging from each category listed above, rabbit hunting success increased considerably during the 1963-64 season. However, the study leader is of the opinion that results from this job are of little or no consequence because the number of cooperators declined from forty to six over the three year period.

Prepared by: Jack O. Collins

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

RABBIT INVESTIGATIONS

WORK PLAN V

State of: Louisiana

Project No. W-29R-11 Name: Statewide Wildlife Investigations

Job No. 3 Title: Rabbit Trapping and Tagging

Period Covered: July 1, 1963 - June 30, 1964

Abstract: This job which was designed to experiment with trapping techniques and to gather data on factors influencing trapping success was conducted on the Thistlethwaite Game Management Area. It is primarily swamp rabbit (Sylvilagus aquaticus) habitat. Twenty-two different rabbits were caught between January 10, 1964 and March 26, 1964. Each rabbit caught was ear tagged and released at trap site. Four of the animals were retraps originally caught in the spring of 1963.

Several kinds of bait were used, but delicious apples were the only acceptable one to rabbits during this period.

Recommendations: Experimental trapping on the Thistlethwaite Game Management Area should be continued with emphasis being placed on baitless trapping techniques.

Objectives: 1. To experiment with trapping techniques. 2. To gather data on factors influencing trapping success. 3. To determine cruising radius, seasonal range, and longevity of marked animals.

Techniques Used: Box type traps varying in number from thirty to ninety were operated on the Thistlethwaite Game Management Area between mid-December, 1963 and April 1, 1964. Some traps were placed at sites that had been trapped during the previous year. Others were placed at new trap sites. The number of traps placed in a particular area varied from twelve to twenty-five, depending on conditions at each location.

Delicious apples were the main kind of bait used, but commercial rabbit pellets and hen scratch were employed for a short period of time. Pre-baiting was not employed, but when the trap was set a small piece of apple was placed on the trigger and another piece at the entrance to the trap. The other type baits were used similarly. During trapping operations the bait was changed daily.

Traps were set in late afternoon and visited between 7 and 9 A.M. the following morning.

All rabbits trapped were tagged in each ear and toe clipped in order to insure permanent identification.

All animals other than rabbits were killed immediately before or after removal from trap. Consequently, there were no repeat catches on any animals but rabbits.

Findings: Tables I and II show results of trapping on the Thistlethwaite Game Management Area between December 19, 1963 and April 1, 1964.

Twenty-six traps were placed in an area on the north side of the Game Management Area on December 18, 1963. All sites were previously trapped, but the last effort was on June 6, 1963. All traps were set on December 19. Type bait was delicious apple. The total catch amounted to one wood rat, but evidence indicated a rabbit freed himself from one trap before the door fell completely.

The second trapping effort was approximately three weeks later. There was no prebaiting and on the afternoon of January 8, 1964 apple was placed on the trigger and at trap entrance. Twenty-three traps were set. During this time heavy clouds were overhead, and a weather change was imminent. There was a light mist in the late afternoon and about 6 P.M. rain showers developed throughout the area. Skies cleared before daylight and temperatures dropped to about 45°F at time of trap inspection. Winds were out of NW at about 10 mph.

Details on weather conditions were pointed out because catch success on this particular night was far above average. Seven swamp rabbits were caught. Of these, six were new, and one was a retrap that was originally tagged on March 12, 1963. See Tables I and II.

On the third trapping effort, January 10, 1964, two new swamp rabbits and one retrap tagged the previous day were caught.

Of twenty-six traps set, rabbits were caught in nine on the night of January 27. Eight were retraps and one was new. The last previous trapping date was on January 10. Three of the eight retraps were originally caught in March, 1963. Five were caught in 1964 prior to this date. Skies were cloudy during the trapping period and the temperature was about 55°F.

There was only one other trapping night in which more than two new rabbits were caught. This was on February 26, 1964 when a total of five were trapped. In addition, there were two repeat catches. During the entire night the weather was cloudy and damp with a temperature of 45°F.

During the first week in March five new trap sites were established. Twelve traps were used at each site. Two of the five were in cottontail range outside the game management area. The other three were at locations that had not been trapped previously. There was no prebaiting and traps on four of the five sites were set on March 4, 1964. The thirty traps previously used were also set. On all of these trap lines the catch success was very low. However, the objective was not only to catch rabbits, but also to experiment with different kinds of bait.

Ants were a serious problem on the area. During any warm up period of one day or more in late February or early March these insects would consume large amounts of delicious apple. Daily sprinkling of Bee Brand insect powder inside and around the trap served as a temporary deterrent. Since catch success was low it was not determined whether this powder repelled animals such as rabbits that had not used the traps previously.

In early March experimenting with different kinds of bait was started. Commercial rabbit pellets, hen scratch, and delicious apples were used. By random selection a third of the traps was set with each kind of bait. Shortly thereafter, use of hen scratch was discontinued because immediate use by birds, cattle, and other animals made it impractical as a rabbit bait on this area.

On ten trapping nights that involved about 400 individual box traps commercial rabbit pellets were used in only negligible amounts. However, near the end of the trapping period cattle were beginning to eat the food and one opossum (Didelphus virginiana) was caught. Ants were not a problem. Delicious apples proved to be the best bait during this period.

As pointed out in Job No. 3, Work Plan V, W-29R-10, competitors for the bait such as opossums can be eradicated from an area during the initial four or five trapping efforts. An area that was trapped extensively prior to June, 1963 was retrapped on ten different occasions between December 20, 1963 and February 26, 1964. The number of traps varied from 23 to 43. During these efforts the only animals caught other than rabbits were one wood rat (Neotoma floridanus). Apparently, most competitors were removed during the previous trapping period. Whereas, a number of opossums and wood rats was trapped at the various new trap sites.

Weather conditions were a major factor concerning the success of rabbit trapping. Generally, catch success was better during warming trends when cloudy conditions prevailed. On cold, clear nights trapping success usually dropped. Movements and, consequently, bait usage were more apparent immediately before and after sudden weather changes.

Retrapped rabbits were usually caught at original trap site or a trap that was within three hundred feet of first trapping place. There was one exception which was rabbit number A-23. It was tagged and toe clipped on May 29, 1963. Table I shows this animal was retrapped on February 19, 1964. The distance it had moved was about 800 feet.

The number of times an animal was retrapped varied from one to five. Seventeen of twenty-two were retrapped at least one time. Of the twenty-two, four were originally tagged prior to June, 1963. See Table II. Three of the four were retrapped at original sites where they were caught. A total of ten was marked and released on this area during March, April, and May of 1963.

In conclusion, experimental trapping on the Thistlethwaite Game Management Area should be continued with emphasis on baitless trapping.

Prepared by: Jack O. Collins

TABLE I

Results of Rabbit Trapping On The Thistlethwaite Game Management Area - July 1, 1963 - June 30, 1964

Date of Trapping	No. of Traps Set	No. of Rabbits Caught			Other Animals Caught		Weather Conditions
		Species	New	Retrap	Species	Number	
12-20-63	23	Swamp			Wood rat	1	Early evening, cold and clear 40°F Late night - cloudy and warming
1-9-64	23	Swamp	6	1	None		Heavy rain early evening. Cooled to 45°F. NW before morning
1-10-64	23	Swamp	2	1	None		Heavy frost this morning. 30°F
1-28-64	26	Swamp	1	8	None		Cool, 55°F, cloudy all night
1-29-64	26	Swamp	1	3	None		70°F to 40°F during night. Cloudy to clear.
2-18-64	30	Swamp		2	None		Heavy rain up to 10 P.M. last night
2-18-64	30	Cottontail	1		None		Misty and cloudy after 10 P.M.
2-19-64	30	Cottontail		1			40°F
		Swamp	1	2	None		Clear and cool last night
2-25-64	43	Cottontail		1	None		Heavy rain until 10 P.M. last night.
		Swamp		3			Morning 40°F.
2-26-64	43	Swamp	5	2	None		Cloudy and damp all last night 45°F.
3-10-64	75	Swamp	1	2	Opossum	2	Fair to partly cloudy - cool - 40°F.
					Wood rat	2	
3-5,6,7-64	225	0	0		None		Cool nights
3-11-64	75	Swamp	0	2	Wood rat	2	Clear - 40°F.
3-12-64	79	Swamp	0	1	Opossum	3	Clear and cool
3-17-64	79	0	0		None		Cool night - much rain previous week
3-18-64	79	0	0	1	Wood rat	4	Cool night 40°F.
3-19-64	90	Swamp	1	1	Wood rat	1	Heavy flash flood at daybreak 70°F.
					Opossum	2	
3-24-64	90	0					Clear and cool
3-25-64	90	0					Clear and cool
3-26-64	90	0					Clear and cool

TABLE II

Results of Trapping Showing Swamp Rabbits Caught
Between July 1, 1963 & June 30, 1964[1]

Tag No.	Date First Caught	Date Retrapped First	Date Retrapped Last	No. Times Retrapped	Sex	Age When First Caught
A-26	1-9-64	- - -	- - -	0	F	Adult
A-20	3-12-63	1-9-64	1-28-64	2	M	Adult
A-27	1-9-64	1-28-64	1-28-64	1	F	Juvenile
A-28	1-9-64	1-10-64	1-28-64	2	F	Adult
A-29	1-9-64	1-28-64	2-25-64	4	F	Adult
A-30	1-9-64	2-19-64	2-19-64	1	M	Adult
A-31	1-9-64	2-25-64	3-19-64	2	F	Adult
A-32	1-10-64	1-28-64	1-28-64	1	F	Adult
A-33	1-10-64	1-28-64	1-28-64	1	M	Adult
A-34	1-28-64	--	--	0	M	Adult
A-16	3-6-63	1-28-64	2-18-64	2	F	Adult
A-13	3-1-63	1-28-64	3-18-64	2	F	Adult
A-35	1-29-64	--	--	0	M	Adult
A-36*	2-18-64	2-19-64	3-12-64	5	F	Adult
A-37	2-19-64	2-25-64	3-11-64	3	M	Adult
A-23	5-29-63	2-19-64	2-19-64	1		Adult
A-38	2-26-64	3-10-64	3-10-64	1	F	Adult
A-39	2-26-64	3-10-64	3-10-64	1	F	Adult
A-40	2-26-64	--	--	0	M	Adult
A-41	2-26-64	3-10-64	3-10-64	1	M	Adult
A-42	2-26-64	3-11-64	3-11-64	1	F	Juvenile
A-43	3-10-64	--	--	0	F	Juvenile

*A-36 Cottontail Rabbit

[1] Last Trapping Date - March 24, 1964

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

RABBIT INVESTIGATIONS

WORK PLAN V

State of: Louisiana

Project No. W-29R-11 Name: Statewide Wildlife Investigations

Job No. 4 Title: Aging Rabbits by the Lens Technique

Period Covered: July 1, 1963 - June 30, 1964

Abstract:

Thirty swamp rabbits were harvested on the Thistlethwaite Game Management Area during the first controlled hunt conducted on the area between October 5 and 20, 1963. None were killed during the second hunt that was between November 9 and 17, 1963. Lenses in apparent good condition were removed from 18 of these. Seven were males, and eleven were females. Of the males, three were juveniles, and four were adults. Four of the eleven females were in the juvenile category.

Lenses from 45 different rabbits harvested during the 1962-63 season were examined. Of these, 17 were in the juvenile category.

Recommendations:

This job should be terminated after the completion of this report because in order to complete the investigation, a good supply of known age rabbits would be necessary and none are available at the present time.

Objectives:

1. Preliminary investigations of aging rabbits by the lens technique.
2. To find out the per cent harvest of adults as compared to juveniles on specified areas during the open season.

Techniques Used: Both eyeballs were collected from each rabbit killed on the Thistlethwaite Game Management Area during the controlled hunt. Each set of eyeballs was wrapped in cheese cloth, tagged with date, sex, and location of kill and placed in formalin for preserving. Eyes from a rabbit were not kept if damaged in any way due to lead shot or improper handling. All lenses used in the sample were taken from swamp rabbits (*Sylvilagus aquaticus*). At time of weighing in late April the lenses were removed from eyes and placed in a drying oven at about 80°C until all moisture was removed. After drying, each lens was weighed. The following day each one was oven dried again and reweighed. This served as a check on complete dryness. From initial time of collection each eyeball or set of lenses was assigned a permanent number. The method used was patterned after that presented by R. K. Martinson and others in *The Journal of Wildlife Management*, Vol. 25., No. 3. Mr. Martinson concluded from his work in Missouri that "the weights of the swamp rabbit lenses were distributed within a 175.4 mg. range and maybe grouped by epiphyseal age as follows: Juvenile lenses

- 128.2 - 205.0 mg.; adult lenses - 212.8 - 303.6 mg. Thus there was no overlap in weights of juvenile and adult lenses."

Findings: Thirty swamp rabbits were killed on the Thistlethwaite Game Management Area during the first controlled hunt which was for a 16 day period, October 5 through October 20. No rabbits were harvested during the second hunt, November 9 through 17, 1963. Eyeballs from 18 of these were preserved. From 12 of the 18, both lenses were used in the experiment.

According to Table I, 7 of 18 rabbits used in the study were males. Of the seven males, three were juveniles and four were in the adult range based on weight of the lenses. Lenses from eleven female swamp rabbits were available for weighing. Seven of the 11 were in the adult range.

As reported in Project W-29R-10, Work Plan V, Job 4, a test to determine weight variations, if any, between lenses from the same rabbit was conducted. Both eyeballs were removed from 12 of the rabbits. Table shows there was no variation in weight between each lens collected from the same rabbit.

Fifty-four rabbits were killed on the Thistlethwaite Game Management Area during the 1962 controlled hunts and seven were collected from outside the management area on January 26, 1963. Eyeballs were preserved from 38 of the 54 and from each of the seven. Of the 38, twenty-two were females and sixteen were males. Based on weight of the lenses, eleven of the females were in the juvenile category, and three of the 16 males were juveniles. Three of the seven collected from outside the management area were females and four were males. Of these, one female and two males were in the juvenile category.

Prepared by: /s/ Jack O. Collins

TABLE I

Weight expressed in Milligrams of Lenses Extracted from Swamp Rabbits Collected on Thistlethwaite Game Management Area During Controlled Hunt, October 5-20, 1963.

Number	Sex	Weight First	Weight Second
1	M	200	200
2A	M	225	225
2B	M	225	225
3	M	240	240
4A	M	190	190
4B	M	190	190
5A	M	290	290
5B	M	290	290
6	M	240	240
7	M	160	160
8A	F	255	255
8B	F	255	255
9A	F	255	255
9B	F	255	255
10A	F	265	265
10B	F	265	265
11A	F	205	205
11B	F	205	205
12A	F	230	230
12B	F	230	230
13A	F	205	205
13B	F	205	205
14A	F	205	205
14B	F	205	205
15	F	235	235
16A	F	255	255
16B	F	255	255
17A	F	165	165
17B	F	165	165
18	F	240	240

"A" and "B" used to identify lenses from a rabbit when both were used in the experiment.

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

SQUIRREL STUDY

WORK PLAN VI

State of: Louisiana

Project No. W-29R-11 Name: Statewide Wildlife Investigations

Job No. 2 Title: Publication on Squirrel Research

Period Covered: July 1, 1963 - June 30, 1964

No work done toward completing this job.

Prepared by: /s/ J. B. Kidd

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

SQUIRREL STUDY

WORK PLAN VI

State of: Louisiana

Project No. W-29R-11 Name: Statewide Wildlife Investigations

Job No. 3 Title: Squirrel Trapping and Tagging

Period Covered: July 1, 1963 - June 30, 1964

Introduction: In order to attain the objectives of this job it is necessary to use data from the fiscal years 1962-63 and 1963-64. Therefore, the following report will present data collected on squirrel trapping, hunting and tag returns during the year 1962-63 and will extend through the 63-64 period up to and including data from the 1963 squirrel hunt.

Abstract: During two trapping periods in May and September, 165 squirrels were marked and released. Hunters killed 40 of these during the October hunt for a 24.2% return. The estimated population before hunting computed from October tag returns was 8836 squirrels. It has been further determined that the squirrel population between the end of hunting in 1962 and the beginning season in 1963 increased approximately 400 squirrels. After hunting in 1963 the remaining squirrel population was computed to be 6440. The natural mortality that occurred from the remaining 1962 sample between the end of hunting in 1962 and beginning of the season in

1963 has been determined as 44.4 per cent. Hunters removed approximately 24 per cent of the total population during October hunting.

Recommendations: This job should be continued for another year without any major change.

Objectives: To determine the per cent of squirrel population harvested by hunters; to determine population turnover and recruitment rate.

Techniques Used: The following method was used to locate 20 trap lines randomly with 10 traps in each line during the 1963 trapping period. A map of the entire area was gridded at one-half mile intervals. The intersections of the grid lines were numbered consecutively and used to determine the mid-point of each trap line. Twenty of these points were selected randomly to determine trap line centers. The direction of the trap line was determined by randomly selecting an azimuth (at one degree intervals) from 0 to 360 degrees. From the center point 5 traps were placed along the selected azimuth in opposite directions from the mid-point. Trap intervals were 100 yards. In the event the trap line intersected the boundary and did not allow the setting of 10 traps, the line was considered complete with the number of traps that could be erected in the distance allowable.

In February 1963, 194 traps were erected on 20 randomly selected lines for May trapping. Additionally, an alternate set of trap lines was selected for September trapping.

On these lines 186 sites were useable.

All traps were tied securely to the trees and flagging tape was used to mark trap sites. Prebaiting was conducted 5 weeks in advance of trapping in May and September. During May trapping each trap was set twice on consecutive days. After May trapping was concluded the traps were taken down and moved to the alternate set of trap sites for the September program. The May trapping procedure was used again in September.

During both periods traps were set at 5:30 A.M. and run twice daily at 11:00 A.M. and 4:00 P.M. after which the trap doors were locked open to prevent squirrels from being caught and remaining in traps overnight. All squirrels were marked with one tag in each ear and a toe was clipped for permanent identification.

Findings: During the two trapping periods, May 13-24 and September 9-20 a total of 165 squirrels were marked and released. One squirrel died in a trap after capture with death coming apparently as a result of shock or fright. The dead animal appeared to be unharmed from external appearances.

The 1963 trapping results were approximately 50% lower than in 1962. It is believed that the reduction in the capture of squirrels was due to one main factor - a reduced squirrel population as a result of poor mast conditions during the fall of 1962. The lowered squirrel population in 1963 is a proven fact as hunters witnessed the poorest squirrel season on the area since its opening.

Hunters in 1963 killed a total of 2396 squirrels as compared to the previous years' kill in 1962 of 5932.

Two hunting periods were granted on the Thistlethwaite area during the 1963 season - one in October and another in November. Hunters returned 79 marked squirrels during the two hunting periods. Of the 79 marked animals, 40 killed in October and 4 in November were part of the 1963 sample. Another 30 squirrel returns in October were from the animals marked in 1962 and 5 more had been marked in 1961. In computing the estimated population before hunts in 1963, per cent hunter harvest in 1963 and natural mortality between 1962 and 1963, only the October returns were used. The following has therefore been determined:

1. $\frac{\text{165 Total marked animals 1963}}{\text{40 Oct. returns by hunters in 1963}} = \frac{\text{x}}{\text{2142 Oct. kill}}$ = 8336 est. pop. before hunt in 1963.

2. $\frac{\text{2142 Total Oct. kill in 1963}}{\text{8836 Est. pop. before hunt}}$ = 24.2% of pop. removed by hunters in Oct., 1963.

3. 8836 - 8428 Remaining after hunting in 1962 (det. from pre. years report) = 408 population increase from end of hunting in 1962 until beginning of hunt in 1963.

4. 8836 - (2142 Oct. kill + 254 Nov. kill) = 6440 remaining in pop. after hunting in 1963.

5. $\frac{\text{30 no. sq. killed in 1963 tagged in 1962}}{\text{x}} = \frac{\text{40 tagged 1963 killed 1963}}{\text{165}}$ =

   124 no. 1962 tagged squirrels still alive at beginning of hunt in 1963.

6. 223 alive after 1962 hunt (determined from previous years report) - 124 alive at beginning of 1963 hunt = 99 tagged animals lost because of natural mortality.

   Therefore, $\frac{99}{223}$ = 44.4% natural mortality that occurred from the remaining 1962 sample between the end of hunting in 1962 and beginning of the season in 1963.

Prepared by: J. B. Kidd

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

WORK PLAN VIII

TURKEY STUDY

State of: Louisiana

Project No. W-29R-11 Name: Statewide Wildlife Investigations

Job No. 1 Title: A comparison of Stocking Success

Period Covered: July 1, 1963 through June 30, 1964

Abstract: Some turkey reproduction occurred on the Red Dirt G.M.A. Adult birds were still present on the Bodcau G.M.A.

Recommendations: It is recommended that this evaluation study be continued.

Objective: The objective of this study is to compare the value of native wild turkey (on Bodcau G.M.A.) to that of descendants of game farm turkey (on Red Dirt G.M.A.) as sources for restocking unoccupied ranges in Louisiana.

Procedure: Field procedure has consisted of one field trip to Bodcau and two such trips to Red Dirt. Personnel of each area were interviewed regarding sight records.

Trapping operations during the spring of 1964 resulted in the moving of two adult turkey hens from St. Helena Parish to the Bodcau G.M.A.

Findings: The Project Leader discovered tracks and droppings of at least one brood of young on Red Dirt. The Area Supervisor found indications of at least one other brood on another portion of the area. Turkey are apparently not numerous on Red Dirt. On Bodcau no tracks or signs were found during the one field trip on the area.

Area personnel report infrequent sightings adult hens and toms. They relayed one unconfirmed report of a brood during the project period.

Conclusions: Each area still has turkey present and the Red Dirt birds seem to be replacing their losses to the point that a small population is being maintained. The Red Dirt population is too small to be very attractive to hunting.

The Bodcau birds have not been under observations long enough to properly evaluate.

Prepared by: Robert E. Murry
Turkey Study Leader

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

WORK PLAN VIII

TURKEY STUDY

State of: Louisiana

Project No. W-29R-11 Name: Statewide Wildlife Investigations

Job No. 2 Title: Productivity of the Wild Turkey in Morehouse and Union Parishes

Period Covered: May 1, 1963 through June 30, 1964

Abstract: The proper time and personnel often could not be allotted to this study as a result of an overload of district activities. The number of observations or samples was lower than was expected, and this as well as other factors imposes limitations to the findings (refer to Table I). An analysis of the date, which was taken predominately from 1963 observations, reveals a total of thirteen (13) broods observed with an average of twelve (12) poults per brood, computed from both single and multiple hen broods as well as those with an unknown number of hens. The average hen-poult ratio was 1 to 6.1, computed from both single and multiple hen broods.

Little information can be obtained pertaining to nesting success and poult survival other than by comparison of the average number of poults per brood or the hen-poult ratio to the average clutch of 11-12 eggs. The overall average brood of twelve (12) poults reveals very high nesting success and poult survival, but the average hen-poult ratio of 1 to 6.1, which is in effect

the computed average single brood, indicates a loss of 50.83 per cent.

The average hatching date, approximated by back dating broods of estimated age and obtaining an average, was the last of the second week of May (approximately May 13-17).

There are no concrete findings at the present, but useable portions of the analysis of these data will be used in combination with other collected data for a more concrete analysis at a later date.

Recommendations: It is recommended that this study be continued with the same objectives as in the past, providing sufficient time and personnel can be allotted to carrying out the work.

Objectives: The objectives of this job are to determine nesting success, poult survival, average brood size, hatching dates, and hen-poult ratios for wild turkey in Morehouse and Union Parishes.

Techniques: Field observations were made at least once each week, whenever possible, during routine duties on selected study areas in Union and Morehouse Parishes including Union Game Management Area and Terzia Refuge. Observational data were recorded. Other areas in which broods were reported by Commission personnel, oil field personnel, logging crews, foresters, etc., were checked for signs or sight records. In cases of reported broods which technicians of La. Wild Life and Fisheries Commission were unable to observe and properly age, a cooperative effort of a technician and the observer was made in an attempt to place the brood in the proper age category according to and with use of information and illustrations from "Game Research In Ohio", Vol. 1, 1962. Hatching dates were approximated by back dating of broods whose age had been estimated.

Findings: This turkey study was conducted, as near as possible, as outlined in techniques. However, as a result of an overload of district activities, sufficient time often could not be allotted to this study. Records of observations for May through June and July through September of 1962, were unavailable for comparison since no study of this type was being conducted at the time (see Table I). Records for May through June 1964, show no observations, therefore, most of the data pertaining to this study are from 1963 observations.

A total of thirteen (13) broods were observed and data recorded during this study period. The thirteen broods, consisting of single and multiple hen broods as well as those with an unknown number of hens, revealed an average of twelve (12) poults per brood. The average number of poults per single hen brood was 8.86, computed from a total of seven (7) observations or samples. The average number of poults per multiple hen brood was 14.67, computed from three (3) samples. Broods from which the number of hens was unknown contained an average of 13.3 poults, computed from three (3) samples. These averages may not be representative as a result of the number of useable samples obtained, being somewhat lower than was expected.

The average hen-poult ratio computed from both single and multiple hen broods was 1 to 6.1. The average hen-poult in single hen broods was 1 to 8.86, with that of the multiple hen brood being somewhat lower at 1 to 4.5.

Hatching dates, approximated by back dating of broods whose age had been estimated, ranged from the first of May to mid-June with the average hatching date being approximately the last of the second week of May (approximately May 13-17). This portion of the study was subject to some error, as there is a great need for a reliable method of aging broods in the field. More specifically, a reliable method is needed whereby non-technical observers could place the observed broods in the proper age category.

Little concrete information can be drawn pertaining to nesting success and poult survival other than comparison of the average number of poults per brood or the hen-poult ratio to the average clutch, the latter of which is approximately 11-12 eggs. The average number of poults per brood, computed from the total of thirteen broods, is twelve (12) poults which indicates very good nesting success and poult survival. This total of thirteen broods represents singular and multiple broods and it is not known how many clutches are represented in the various multiple broods, therefore, it is more advantageous to compare the average clutch to the hen-poult ratio, the latter of which in effect represents the average computed single brood. Assuming that all of the twelve eggs of an average clutch hatched, the May 1963 hen-poult ratio of 1 to 9 indicates a 25 per cent loss, the July 1963 hen-poult ratio of 1 to 5.6 indicates a 53.33 per cent loss, August 1963 with a 1 to 10.3 ratio indicates a loss of only 14.17 per cent, with September's ratio of 1 to 4.8 indicating a loss of 60 per cent.

The average hen-poult ratio for the study period is 1 to 6.1 indicating an average loss of 50.83 per cent.

At present time sufficient data have not been recorded for the formulation of any concrete findings. The above findings have their limitations; as a result a low number of samples taken and the lack of strict standardization in aging and other factors. At present the analysis is for district information, but useable portions will be taken in combination with other data for a more concrete analysis at a later date.

Prepared by: /s/ Jerry W. Farrar
Biologist, District II

/s/ Clifford T. Williams
Supervisor, District II

TABLE I

			Broods /Single Hen	Broods/ Multiple Hens											
Month	No. Broods	Total# Poults	No. Poults /Brood	No. Poults /Brood	No. Hens	No. Poults in Broods Where # Hens Unk.	Est. Age of Poults	Approx. Hatch. Date	Area	Avg. # Poults /Brood/ Single Hen	Avg. # Poults /Brood/ Multiple Hens	Hen/Poult Computed From Single and Multiple Broods	# Adult Hens (Without Poults)	No. Adult Males	No. Adult Sex Unknown
5-'63	1	9	9				3 wk.	5/1-7	Morehouse	9		1:9			
6-'63	0	0							Union and Morehouse				0	0	0
7-'63	2	28	3				7-8wk.	5/1-7	Union	3	6.25	1:5.6	1	6	6
				25	4		15-16 wk.	4/1-7	Morehouse						
8-'63	3	31	12				10-11 wk.	6/7-14	Morehouse	10.3		1:10.3		4	1
			8				11-12 wk.	5/1-7	Morehouse						
			11				10-11 wk.	6/7-14	Morehouse						
9-'63	7	88	4						Morehouse	9.5	3.63	1:4.8	1	17	23
						14			Morehouse						
				11	4				Morehouse						
				18	4		12-14 wk.	5/29-6/4	Morehouse						
			15				15-16 wk.	5/10-17	Union						
						8			Union						
						18			Union						
5-'64	0	0											0	0	0
6-'64	0	0											0	0	0

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

WORK PLAN IX

SPECIAL STUDIES

State of: Louisiana

Project No. W-29R-11 Name: Statewide Wildlife Investigations

Job No. 3 Title: Survival and Reproduction Studies of the Gum Cove Black Francolin Release

Period Covered: July 1, 1963 through June 30, 1964

Abstract: From March to mid-April francolin sight records greatly increased on and near the release area. Some francolin remains were found.

An experimental census technique based on a time area count of calling males was employed. Several birds were heard north of the Intracoastal Canal.

Recommendations: It is recommended that a great deal of emphasis be placed upon studying the ecology of the black francolin in Louisiana. A small number of adult birds should be transplanted to a suitable area in an effort to learn as much as possible about further establishment in Louisiana.

Objective: The objective was to determine the status of the black francolin (Francolinus francolinus) on and adjacent to the release area.

Techniques Used: Much of our information came from direct observations made by project personnel during periods of other work on the area. Sight and brood records came from ranch hands and other people who worked on or near the area. In preliminary work prior to taking the study leader position to research all of Louisiana's foreign game birds, Ray Palermo assisted in designing a francolin census technique. On June 5, 1964, 16 Commission employees and two students conducted the only trial census of the project period.

The results were presented to the Southeastern Foreign Game Committee, at Maryville, Tennessee on August 12. A copy of this report is appended to this document.

Findings: In March of 1964 employees engaged in predator control work gave very pessimistic reports of the status of the francolin on and near the release area. Sight records were infrequent and the finding of feathers and francolin remains indicated that predators had taken birds or that scavengers had eaten carcasses made available by some other source of mortality. Bone fragments of one wing indicated that a mammal had been the last to dine on the individual.

By mid-April sight records picked up to the point that francolin appeared to be more numerous than at any other time during that season of the year. The June census effort revealed many weaknesses of this technique but was also encouraging that, with modifications and more frequent application, a workable index can be obtained by this method. This census confirmed the presence of a good population north of the Intracoastal Canal. If failed to indicate birds on some areas where very reliable local people had reported birds as little as one day prior to the census. It has been found that to accurately chart the rate of spread a great many census efforts will be necessary to assure hearing a calling male.

Prepared by: Robert E. Murry
Project Leader

A Possible Census Method for the Black Francolin

Gum Cove Release Area - Cameron Parish, La. - June 5, 1964

Objective: The objectives of this census are listed below:

1. To test and determine the validity of a calling cock census method on the black francolin (*Francolinus francolinus asiae*).
2. To provide an index to the relative abundance of black francolin on and adjacent to the release area.
3. To determine the rate of spread from the release area.
4. To familiarize Louisiana Wild Life and Fisheries personnel with the habits and characteristics of the black francolin in the wild.

Procedure: The census routes were selected on June 3, 1964. Routes selected were in areas where local residents had reported observing birds. The main objective of these "fringe" routes was to confirm the presence of black francolin and thereby determine the rate of spread. The selection of a beginning point on the census route was made with the number of personnel and vehicles available kept in mind. Ten census routes were set up utilizing a total of eighteen men. The census procedure consisted of three one-hour listening periods, each at a new location. Specifically the listening periods were 7 A.M. - 8 A.M., 8:15 A.M. - 9:15 A.M., and 9:30 A.M. - 10:30 A.M. A fifteen minute interval was allowed between periods for the purpose of driving to new listening posts. The listening stops were predetermined by first selecting the starting point, which was the first stop for one man. The next man listened at a point six-tenths of a mile down the census route from the first and the third man six-tenths of a mile from the second. At the end of the first hour's listening, the driver of the vehicle picked up his two passengers and proceeded six-tenths of a mile from his last listening point. This procedure was repeated for the third listening hour. In effect, the listening points were all six-tenths mile apart.

One observer was stationed at a 3-hour listening point to serve as a check on time of maximum calling. This station was one where francolin had often been heard calling.

At each listening stop the following data was recorded:

1. A count of the number of birds heard calling.
2. Time bird began calling.
3. Direction of bird from observer.
4. Estimated distance (yds.) of bird from observer.
5. Total number of calls made by each bird.
6. Number and sex of birds seen while at listening point. Also, whether banded or unbanded.

There were twelve observers north and six south of the Intracoastal Canal, each listening at three separate stops for one hour at each stop. Therefore, a total of 36 man-hour's listening was spent north of the canal and 18 south of it.

On the morning of June 4, 1964, the observers assembled at the District 5 office (DeRidder, La.) and were indoctrinated on the proposed census. In addition, each observer's hearing ability (for black francolin calling) was determined. This was accomplished by first measuring off one-half mile from the francolin breeding pens at 50 yard intervals. The observers walked to each interval, with male black francolins calling at the breeding pens, and each man's hearing range was thus ascertained.

The afternoon of June 4 was spent at the census and release areas, showing each census crew its respective route. A tour of the Gum Cove release area was made.

Observations and Results:

While selecting census routes on June 3 two francolins were heard calling near the Intracoastal Canal (five airline miles from the release site). A number of other calling birds were heard, five cocks were observed, (three unbanded, two unknown) and one female with a brood of at least three chicks was observed - all within four miles of the release site.

On June 4 one calling cock was observed and a number of others were heard calling.

At DeRidder it was determined that ten of the observers could hear a calling black francolin at a maximum distance of one-half mile, three at one-quarter mile, and four at 250 yards. These hearing distances were used as a basis for the total acreage censused. South of the Intracoastal Canal a total of 3,200 acres was censused using six observers, while 14,220 acres were covered north of the Canal using 12 observers.

Location	Acres Censused	No. Birds Heard	Acres Index Calling Cock
South of Canal (Release Area)	3,200	20	160
North of Canal	14,220	7	2,031
	17,420	27	645

Total Number of Birds Heard and Seen During Listening Hours

Hour	Cocks Heard Only	Cocks Heard and Seen	Cocks Seen Only	Total	Females Seen
1 (7-8 A.M.)	10	2		12	
2 (8:15-9:15 A.M.)	10		1	11	1
3 (9:30-10:30 A.M.)	3	2		5	
TOTAL	23	4	1	28	1

In addition to the above, seven cock birds were either seen or heard and one female was seen while driving before, between and after the census periods. Therefore, a total of 35 cock birds and 2 females were accounted for on the June 5, 1964 census.

The observer at the 3-hour listening point heard three francolins calling during the first hour, one the second, and none the third. In view of the limited observations above it appears, as was expected, that maximum calling takes place during early morning hours - possibly between daybreak and 7 A.M.

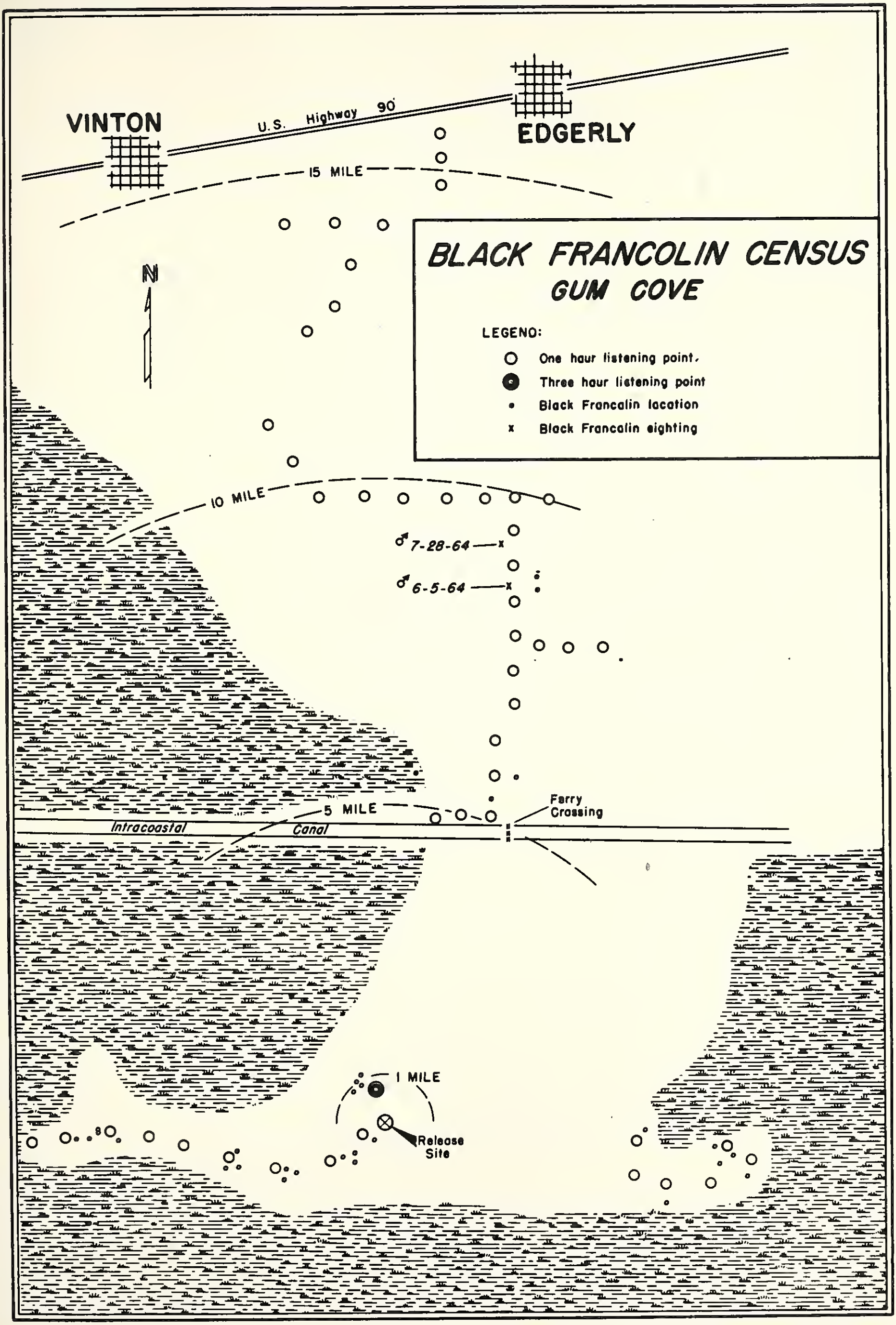
From this census it appears that the black francolin is definitely established on the original release area and possibly up to ten miles of it. Unconfirmed sight reports extend to about 20 miles of the Gum Cove release site.

Recommendations: 1. Another census effort should be made during the 1964 breeding season to further refine the census method including possibly an earlier listening hour.

2. Attempts should be made to determine the relationship of a calling cock to the black francolin community.

3. Attempts should be made to develop trapping techniques and to mark and/or band birds.

Prepared by: Raymond J. Palermo
Biologist


BLACK FRANCOLIN CENSUS
GUM COVE
LEGEND:
○ One hour listening point.
● Three hour listening point
• Black Francolin location
x Black Francolin sighting
VINTON
EDGERLY
U.S. Highway 90
15 MILE
10 MILE
5 MILE
1 MILE
N
♂ 7-28-64
♂ 6-5-64
Ferry Crossing
Intracoastal Canal
Release Site

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

WORK PLAN IX

SPECIAL STUDIES

State of: Louisiana

Name: Statewide Wildlife Investigations

Project No. W-29R-11

Title: Survival and Reproduction Studies of the Oak Ridge Black Francolin Release

Job No. 4

Period Covered: July 1, 1963 through June 30, 1964

Abstract: Unbanded (locally reared) birds were observed. Sufficient breeding stock is still present and reproduction has occurred each year. Outlook of release success is optimistic. An early morning call count was initiated and a Graduate Student in Game Management was assigned to the project in June, 1964, to study bird movement, life history, and to experiment with trapping techniques, etc.

Recommendations: It is recommended that district personnel continue to make periodic checks on and adjacent to the release area and to assist the graduate student and study leader assigned to this project. The early morning call counts should be continued and further work on trapping techniques should be carried out.

Objectives: To provide an accurate chronicle of the status of the black francolin (*Francolinus francolinus*) in the vicinity of Oak Ridge, Louisiana.

Techniques Used: General field trips and early morning call counts were made on the release area by district personnel and the Graduate Student assigned to the project. Trapping attempts using decoy and baited traps were made. Field observations plus reports from area residents were recorded.

Findings: Investigations were conducted as outlined in techniques used, and a total of 54 man days were expended by the Louisiana Wild Life and Fisheries Commission personnel during the indicated study period. Investigations prior to June 15, 1964, were made by Commission personnel only. Subsequent investigations and findings, since this date, have been through the combined efforts of the graduate student assigned to this project and Louisiana Wild Life and Fisheries Commission personnel.

During the project year 14 early morning call counts were made (See Table I). The number of calling birds heard, during each call count, varied from 0 to 14. The total number of calls recorded for each count ranged from 0 to 60.

The Black Francolin was found to be inconsistent with its calling.

They failed to call each day and calling locations varied greatly.

Prior call counts indicated that birds inhabited the area, but often the birds were not heard although some were observed after the end of the call count.

Temperature is believed to influence calling and dry weather conditions may have its effect on the amount of calling. Cool temperatures resulted in zero calls during the spring call counts. In view of these findings it is believed that the call count is not a true indicator of the existing population. Additional time should be allocated to this technique.

Reproduction has occurred each year as evidenced by observation of several unbanded (locally reared) birds, as well as a few broods. A report of a brood was confirmed by the assigned graduate student and Commission personnel, on June 24, 1964. Three birds were observed in the brood and the estimated age was 2-3 weeks. Flock movement was confined to a relatively small area. The birds were observed several days within 15-25 yards of the original sighting location.

There are many reports of area residents sighting birds throughout the year at numerous and varied locations. This indicates a good dispersal of birds on the release area. Bird movement to adjacent territory may not be as great as previously thought.

Experiments with trapping techniques were conducted in which decoy and baited traps were used. All trapping attempts were unsuccessful. Baited trapping stations should be maintained throughout the year. Future investigations into trapping techniques suitable to the black francolin should be planned.

Prepared by: /s/ Clifford T. Williams
Biologist-Supervisor, District II

/s/ Jerry W. Farrar
Game Biologist, District II

TABLE I

Black Francolin
Early Morning Call Counts
1963-64

	Calling	No. Calls	Birds Seen
July 7, 1963	7	60	2
July 8, 1963	1	4	0
July 30, 1963	8	55	1
August 15, 1963	14	50	0
March 6, 1964	0	0	0
March 13, 1964	0	0	0
March 25, 1964	0	0	0
April 1, 1964	0	0	0
April 22, 1964	0	0	0
May 6, 1964	1	15	0
May 14, 1964	0	0	0
June 24, 1964	7	71	1
June 25, 1964	4	26	0
June 30, 1964	4	31	0

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

WORK PLAN IX

SPECIAL STUDIES

State of: Louisiana

Project No. W-29R-11 Name: Statewide Wildlife Investigations

Job No. 5 Title: Effects of Administration of Tranquilizers on Various Species

Period Covered: July 1, 1963 through June 30, 1964

Abstract: Two successful attempts to take wild deer with "Tranimul" were made. This orally administered tranquilizer was mixed with a commercial brand of calf feed that was placed in wooden troughs that had been baited with the untreated calf feed for several weeks prior to the trapping operation. Bait was put out in the late evening and capture was made at night with the aid of a headlight. Representatives from several southeastern states witnessed one of these operations. Three unsuccessful attempts to capture wild deer were made. In these cases, adequate usage of the baited troughs was never attained. Preliminary investigation was begun on dosage rates for turkeys. A new method was devised. Captive deer and turkeys are being maintained as test animals for this study.

Recommendations: Attempts to capture wild deer using oral tranquilizers should be continued. This work should be attempted in areas where there is an existing high deer population. A situation where many deer are feeding on winter food plots is especially desirable for this type of operation. Care should be taken to insure that there is a minimum of disturbing elements such as free ranging dogs, illegal hunting, and vehicular traffic. Prebaiting should start when available food is at a low level. Bait should first be scattered in small piles on the ground to familiarize the animals with the new material. As usage increases bait can then be placed in the small wooden troughs used previously in these experiments. It would be advisable to make arrangements early in the fall to plant heavily fertilized winter wheat in some of the existing food plots on the game management areas. This would insure us of having an ideal situation in which to fully exploit the use of oral tranquilizers in capturing wild deer.

In a trapping operation it has been found that in addition to conducting the capturing phase at night and using head lights to locate the drugged animals, a nylon net of approximately 50' in length, 5' high and having 4" mesh would be of great value in capturing those animals that did not receive enough of the tranquilizer to completely immobilize them. Two men can easily manipulate this seine-like net and surround the drugged animal. Two nylon dip nets having a depth of 4' and a diameter of approximately 3', also 4" mesh, can be used to great advantage, in capturing animals that are able to move about with only moderate incoordination. A Palmer Syringe Gun used in conjunction with these nets would greatly increase the chance of capturing nearly every deer that showed symptoms of being tranquilized. In many cases animals that receive subtranquilizing dosages remain on their feet and alert but will allow a worker with a head light to approach within 20 or 30' which is ideal range for the dart gun.

An effort should be made to work out dosage levels and tranquilizing techniques for the wild turkey. The effects of tranquilizing agents on captive exotic game birds should be also measured.

New tranquilizing agents should be screened to determine if they can be used in capturing wild animals.

Techniques: In all cases during the period covered by this report, the tranquilizer was administered orally. With deer the powdered tranquilizing agent, Tranimul, was mixed with a commercial brand of calf food. Deer had been prebaited with this calf food for several weeks. The bait was put in small wooden troughs placed in fields where large numbers of deer normally came to feed. A new method to treat seed with tranquilizing compounds was devised. This method consisted of mixing laundry starch, granulated sugar, water and the powdered tranquilizer and stirring in the bait material until all of the grains became coated with the mixture. Captive deer and turkeys are maintained for test animals under this study.

Findings: The first attempt in capturing wild deer with orally administered tranquilizer was made on the cattle ranch of Mr. R. A. Moore in Cameron Parish, Louisiana. This ranch has a high deer population. In the winter these deer normally concentrate in four cattle free fields which are planted with oats. This seemed to offer an ideal situation in which to check the potentialities of this new approach to deer trapping.*

*Reported in PRW-29R Informal Report of Tranquilizer Demonstration by R. E. Murry, Project Leader & Dan Dennett, Deer Study Leader.

These deer were prebaited for about two and a half months before the attempt to capture them was made. During the two and a half months of prebaiting there was a period of about ten days during which feed was not put out at the baiting stations. Bait was placed in small wooden troughs made of 1x6 pine lumber. Two 1"x6" pieces, 12" long were fitted together by mitering a 45° angle cut along the 12" edge. This 45° edge is then fitted along the side of the 1"x6"x12" to make a shallow V with a 135° inside angle. The 1"x4" ends complete the troughs. Two 3/8" holes are drilled in each corner of the trough to prevent the accumulation of rain water. Purina Calf Startena was used as bait. Deer seemed to readily take this type of feed. There was about 125 pounds of feed consumed each night. The tranquilizing mixture consisted of 180 grams of Tranimul which was mixed with 67 quarts of calf feed. Thus, each quart measure should have had 2.686 grams of Tranimul in it. The treated feed, which weighed about 75 pounds was measured and placed in the 67 troughs in approximately one quart portions by the same two men that the deer were accustomed to. They serviced these troughs just before dark. The field was entered about 8:15 P.M. approximately two and a half hours after the baited feed was put out. Deer was captured while using a bright light to blind them and one or more persons starked them and grabbed for their legs. Drugged deer were also caught after they attempted to bound off after standing or lying in one place for awhile. Several badly incordinated deer were caused to partially recover by the excitement of capture efforts.

Captured deer were trussed with 3/8" manila rope. Deer were carried to the road by hand and loaded into deer hauling crates mounted on pickup trucks. A blood sample of nearly one pint was taken from each deer captured by a field team representing the Southeastern Cooperative Wildlife Disease Study and the University of Georgia. This blood was used for studying anaplasmosis in deer. Twelve deer, 6 bucks and 6 does, were captured and hauled to a release area for restocking purposes. Residents of the release area reported that there was no evidence of mortality several days after the release. One deer remained at the release site throughout the day of the release, but apparently recovered and moved on to woody cover during the second day.

Employees who put out the bait were instructed to pick up the uneaten feed from the troughs at the conclusion of the capture efforts. About one pint of feed was found at one trough out of a possible 20 that were checked after the feed had been picked up. It is possible that additional troughs containing feed were missed by these men. Upon our returning to the field the following morning, the troughs were empty and one adult buck was lying by a feed trough, partly incordinated. Upon attempting to escape, his antlers became buried in the ground and he was captured and tied up. The unused portion of feed measured 51 quarts. Therefore, the 16 quarts of feed that were consumed contained nearly 43 grams of Tranimul. The 13 deer captured were taken with an average use of 3.3 grams. It was apparent to those present that the 43 grams were not all ingested by the 13 deer captured because at least an equal number of partly drugged animals escaped.

One rabbit, two skunks and one opossum, all showing some signs of being drugged, were observed. The rabbit and opossum were captured and the skunks were closely approached but were not handled.

So confident were we of the outcome of this operation that we invited game departments of the southeast to observe the operation. Technicians from Alabama, Florida, Mississippi, North Carolina, Virginia, Tennessee and Texas were present, personnel from the Cooperative Wildlife Disease Study and the University of Georgia, were also present. Due to the large amount of interest expressed by those who attended demonstration, we feel that we are not alone in thinking that this technique of capturing wild animals offers great promise to wildlife workers. The use of orally administered tranquilizers was further demonstrated to the group of visiting biologists in a five acre enclosure which contained approximately 25 captive deer. This deer pen was also on the R. A. Moore ranch. These deer were normally fed once a day. Feed was withheld two days prior to the demonstration. On the morning of the demonstration 24 quarts of the feed salvaged from the previously discussed operation was placed in four feed troughs. This feed contained approximately 65 grams of Tranimul. The deer nearly consumed all but about 4 quarts of the feed which contained about 54 grams of Tranimul. Twelve deer were captured, tied up and moved to the front of the enclosure and were released as soon as blood samples could be obtained. Subsequent daily checks were made on the progress of the deer's recovery. Three deer were found dead or dying during a three day period following the capturing operation. All other deer apparently made complete and satisfactory recoveries. Due to the fact that nearly a pint of blood was taken from each deer and some of them remained tied up until the last capture effort was made (possibly as long as 5 hours) the deaths of these deer could be caused by loss of blood, inactivity for long periods resulting in pneumonia, aspiration of rumen contents, shock of the drug, mechanical injuries during capture and handling, or any combination of these. An additional attempt in capturing wild deer was also made on the R. A. Moore ranch for the purpose of demonstrating the use of oral tranquilizers. Three oat fields, other than the one where the first demonstration was made, had been prebaited for about three weeks prior to the capture attempt. There were only four bait troughs in each of these fields. Twenty-seven grams of Tranimul was added to the twenty-seven quarts of feed salvaged from the demonstration in the other oat fields. Five more troughs were put out in each field, giving a total of nine troughs in each of the fields, and a quart of the more strongly treated feed was placed in each trough. This gave approximately 33 grams of Tranimul per field. This bait was placed in the field in mid-morning. Periodic drives by other fields revealed that the feed went undiscovered by the deer in two of the fields. At 4 P.M. deer were observed to be using feed in one oat field. A few minutes after 5 P.M. a check on the field where deer had been seen using the bait showed several deer that were obviously drugged. A very dense fog rolled in causing a premature twilight condition and five men hurriedly attempted to capture the deer. An unusually large doe was captured, bled and released.

Three other attempts were made to concentrate deer on prebaited sites but were unsuccessful, although the same type of feed was used as bait in all cases. Sufficient usage in these other localities was never obtained. It was felt by those involved with this study that the primary reason for the failure of these operations was the presence of various disturbing elements, such as free ranging dogs, illegal night hunting and assorted kinds of vehicular traffic.

Preliminary studies on dosage rates for wild turkey have been started. These studies are not yet complete and will be reported on at a later date. In conjunction with this part of this investigation, the Research Project Leader devised a method for administering the powdered tranquilizing agent to birds. This method consists of mixing laundry starch with enough cool water to dissolve it. Boiling water is added and the mixture is stirred until the starch solution cools down to approximately 120° F. The powdered tranquilizer is then stirred in and thoroughly mixed with the medium. Into this mixture is added enough grain to take up all of the mixture so that an even coat is obtained by all of the grain particles. The quantities of the ingredients involved will vary with the amount of treated material desired and the dosage rate required. It has been found that prebaiting with grain coated with the starch mixture without the tranquilizer added will help to familiarize the birds with the new bait. Thus they will not be "bait shy" when the time comes to capture them.

Submitted by: Dan Dennett, Jr.,
Deer Study Leader

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

WORK PLAN IX

SPECIAL STUDIES

State of: Louisiana

Project No. W-29R-11 Name: Statewide Wildlife Investigations

Job No. 9 Title: Testing Techniques for Estimating Rabbit Populations.

No work was undertaken on this job. The Study Leader was appointed Leader of the Development Project. The duties of this new assignment required all of his time.

Prepared by: John Haygood
Project Leader

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

WORK PLAN IX

SPECIAL STUDIES

State of: Louisiana

Project No. W-29R-11 Name: Statewide Wildlife Investigations

Job No. 12 Title: Ecological Evaluation of Catahoula Lake as it Relates to Waterfowl Habitat.

Objectives: To determine the role of the following factors as they relate to waterfowl habitat on Catahoula Lake.

1. Waterfowl feeding habits.
2. Forage production and utilization by livestock.
3. Chufa production and utilization by livestock.
4. Herbaceous seed production.
5. Herbaceous ground cover.
6. Physical and chemical properties of the soil.
7. Lead shot deposition.
8. Woody overstory competition.
9. Water qualities.
10. Rate of sedimentation.

Since most of these objectives were only partly attained, they will not be reported upon before July of 1965. Objective No. 7 is the subject of a paper prepared by the Study Leader and L. L. Glasgow of Louisiana State University for presentation to the October 1964 meeting at the Southeastern Section of the Wildlife Society at Clearwater, Florida.

Prepared by: Dewey W. Wills
Study Leader

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

WORK PLAN IX

SPECIAL STUDIES

State of: Louisiana

Project No. W-29R-11 Name: Statewide Wildlife Investigations

Job No. 13 Title: Field Testing Methods Used to Prevent Crop Damage by Deer

Period Covered: July 1, 1963 through June 30, 1964

Abstract: This study was designed to explore the possibilities of finding a cheap,effective means of preventing crop damage by deer. Small farms operating in areas where high deer populations exist offered excellent opportunities to test the effectiveness of deer repelling devices. The primary objective of this study was to test and perfect explosive booby trap devices. Secondarily, a commercial deer repellent was to be tested. Legal restrictions governing the sale and use of powerful fire crackers prevented the testing of the booby trap devices. The commercial brand of liquid deer repellent tested was found to give temporary relief from deer damage when used on heavily fertilized wheat plots.

Recommendations: Due to unforeseen legal restrictions governing the use and sale of certain types of high powered firecrackers, the primary objective of this study was not achieved. It was the intention of this study to test and evaluate the use of booby trap type explosive devices similiar to those described by Flyger (1961).

These devices are made from a type of army fire cracker designated as the M-80. Louisiana law prohibits the sale and use of these firecrackers and consequently the field testing of the devices utilizing this type of firecracker was not possible. Therefore, it is recommended that unless special legislation can be obtained that will alter the present law and thus give the Louisiana Wild Life and Fisheries Commission legal authority to use and purchase this type of firecracker, that this study be terminated.

Preliminary study of the literature available in liquid deer repellents in conjunction with the limited field testing carried out under this job suggests that this type of repellent is impractical for use in most deer damage situations here in Louisiana. It is therefore, recommended that further pursuit of this phase of this study be discontinued.

Objectives: To determine the effectiveness of booby trap devices and repellents in preventing crop damage by deer.

Techniques Used: The booby trap device mentioned previously in this report was originally described by Flyger (1961). These devices consist of an Army type M-80 Firecracker, a small Japanese pull type party exploder which serves as the detonator and a trip string. The small party exploder is fastened to the side of an M-80, which has had the fuse removed, so that the body of the exploder lies directly over the fuse hole. The exploder is held in this position by wrapping securely with electricians' tape. The entire assembly is then waterproofed by dipping into melted parafin. By anchoring the device to a solid object and tying a trip string, anchored on the other end, to the pull string on the party exploder, the device is ready to use. Any deer that hits the trip string will detonate the booby trap. This method of repelling deer offers great promise to the small farmer who is suffering from deer damage. Limited testing of a sample of liquid deer repellent was done. The type of liquid tested is commercially known as "Diamond L Brand." This compound was tested on a plot of heavily fertilized winter wheat. This plot was a supplementary deer food planting on a game management area and was being well used by deer. Ten test plots, each being five feet square, were treated with the repellent. Ten control plots of the same dimensions were placed adjacent to the test plots. Test plots and their controls were evenly spaced across the wheat field. The deer repellent compound was sprayed on the test plots, taking care not to let the wind carry any of the repellent to the control. The repellent was mixed according to the directions supplied by the manufacturer. Plots were checked ten days after application to see if test plots showed any visible difference from their controls. A slight difference was detectable at this time. About two days before the plots were checked, there was a hard rain in the area. Deer tracks were still observed in the wheat field in approximately the same numbers as before treatment. It appeared that the repellent did have some effect on the deer choice of wheat stems.

Findings: The booby trap deer repelling device offered a cheap and possibly effective means of preventing crop damage. Unfortunately state law prevented this phase of this study from being initiated.

Preliminary testing of a sample of liquid deer repellent showed that the "Diamond L Brand" did have some repelling action on deer feeding on winter wheat. However, it is doubtful if this type of repellent would be practical in most cases.

Submitted by: Dan Dennett, Jr.,
Deer Study Leader

JOB COMPLETION REPORT

RESEARCH PROJECT SEGMENT

WORK PLAN X

BEAR INVESTIGATIONS

State of: Louisiana

Project No. W-29R-11 Name: Statewide Wildlife Investigations

Job No. 1 Title: Inventory of Bear in Louisiana

Period Covered: 1 July 1963 through June 30, 1964

Abstract: Reports of findings of the bear range surveys were prepared. Copies of the report on the East Carroll Game Management Area and adjacent lands were sent to the Fish and Game Division office and to the Study Leader.

Recommendations: It is recommended to continue this job as it is. It is further recommended that these surveys be made in conjunction with the deer range surveys. Each Game Management Area Supervisor whose area has bear should be instructed to keep a record of bear and bear sign found on his area.

Objective: To learn as much as possible regarding the various bear ranges in the state and the animals that occupy them. To compile a record of locations and number of bear for future management.

Techniques Used: The surveys are made by the investigator going into the area, and as he traveled (by boat or vehicle), making stops and walking to gather the necessary information. Stops were made as often as deemed necessary by the investigator. At each stop notes were made as to bear sighted or sign such as tracks, droppings, or clawing or scratchings on logs or trees. Local people were contacted to get any additional information that was needed. On the East Carroll Game Management Area deer hunters supplied some information of bear observed while hunting on the area or adjacent lands.

A narrative report was prepared on each area surveyed. The report contained all pertinent information gathered on each area.

Findings: Reports were prepared on two areas that were surveyed. One area was the East Carroll Game Management Area and adjacent lands in East Carroll Parish. The other area was Cote Blanche Island in St. Mary Parish. The report of the survey on East Carroll Game Management Area was prepared at the District II office. Copies were sent to the study leader and the Fish and Game office. The report of the survey of Cote Blanche Island has not been forwarded to the Fish and Game office.

Reports of bear in other areas were received. To the present time none of these have been checked out.

Prepared by: Louis Brunett
Study Leader

Approved by: ______________________
Robert E. Murry, Project Leader

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Charles R. Shaw, P-R Coordinator

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Joe L. Herring, Chief, Fish &
Game Division

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J. D. Hair, Jr., Director